

REPLACEMENT
SHEET



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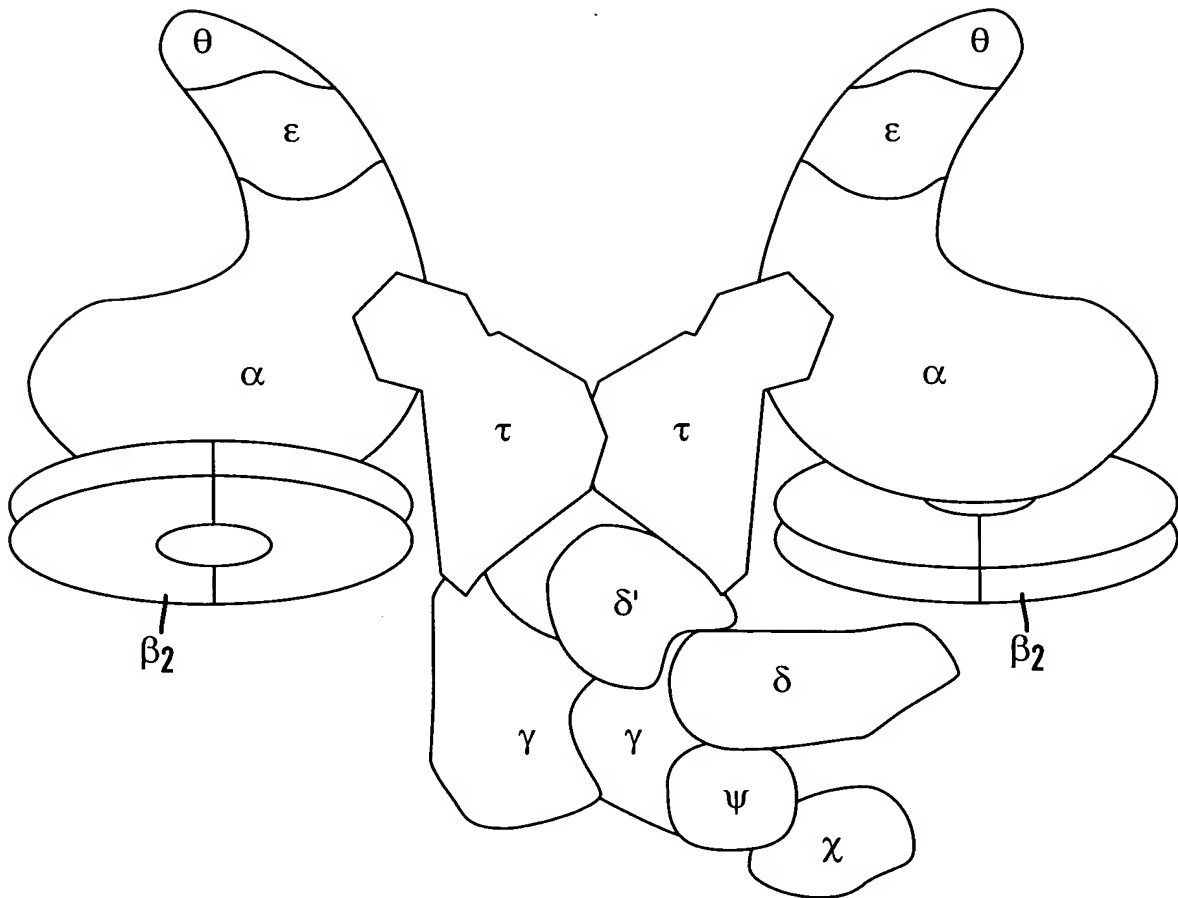


FIG. 1

REPLACEMENT SHEET

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ATP binding

E. coli	MSYQVLARKWRPQTFADVVGQEHVLTALANGLSLGRIH HAYLFSGTR GVGKTSIARLLAK
B. subtilis	MSYQALYRVFRPQRFEDVVGQEHITKTLQNALLOKKF SHAYLFSGPRGTGKT SAAKIFAK
	*** * * * * . * * * . * * * * * * * * * * * * . . *
E. coli	GLNCETGITATPCGVCDNCREIEQGRFVDLIEIDAASRTKVEDTRDLLDNVQYAPARGRF
B. subtilis	AVNCEHAPVDEPCNECAACKGITNGSISDVIEIDAASNNGVDEIRDIRDKVKFAPSAVTY
	. *** . ** . * . * . * . * . * . * . * . * . * . * . *
E. coli	KVYLIDEVHMLSRHSFNALL KTLEPP EHVKFLLATDPQKLPVTILSRCLQFHLKALDV
B. subtilis	KVYIIDEVHMLSIGAFNALL KTLEPP EHCFILATTEPHKIPLTIIISRCQRFDFKRITS
	*** . ***** . ***** * . ***** * . ***** * . ***** * . *

FIG. 2

REPLACEMENT SHEET

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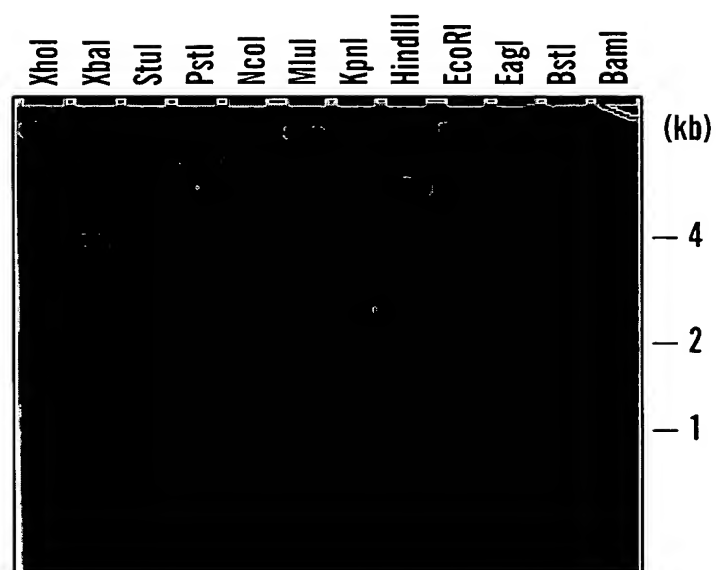


FIG. 3

REPLACEMENT SHEET

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TCCGGGGGTG	GGGTTCCTCCAG	GTAGACCCCG	GCCCCCTCCCG	TGAGCCCCCTT	TACCCAGGCC	60
GCCACCTCCT	CCAGGGGGGC	CAAGCGGTGC	AAGGAGAGGA	ACGTCCGCAC	<u>CACGCCCTAT</u>	120
ACTAGCCTT	GTG AGC GCC CTC TAC CGC CGC TTC CGC CCC CTC ACC TTC CAG GAG GTG GTG				S.D.	180
	met ser ala leu tyr arg arg phe arg pro leu thr phe gln glu val val					(17)
GGG CAG GAG CAC GTG AAG GAG CCC CTC CTC AAG GCC ATC CGG GAG GGG AGG CTC GCC CAG					CAC	240
gly gln glu his val lys glu pro leu leu lys ala ile arg glu gly arg leu ala gln						(37)
GCS TAC CTS TTC TCC GGS AC						
GCC TAC CTC TTC TCC GGG CCC AGG GGC GTG GGC AAG ACC ACC ACG GCG AGG CTC CTC GCC						300
ala tyr leu phe ser gly pro arg gly val gly lys thr thr thr ala arg leu leu ala						(57)
ATG GCG GTG GGG TGC CAG GGG GAA GAC CCC CCT TGC GGG GTC TGC CCC CAC TGC CAG GCG						360
met ala val gly cys gln gly glu asp pro pro cys gly val cys pro his cys gln ala						(77)
GtG CAG AGG GGC GCC CAC CCG GAC GTG GTG GAC ATT GAC GCC GCG ACC AAC TCC GTG						420
val gln arg gly ala his pro asp val val asp ile asp ala ala ser asn ser val						(97)
GAG GAC GTG CGG GAG CTG AGG GAA AGG ATC CAC CTC GCC CCC CTC TCT GCC CCC AGG AAG						480
glu asp val arg glu leu arg glu arg ile his leu ala pro leu ser ala pro arg lys						(117)
GTC TTC ATC CTG GAC GAG GCC CAC ATG CTC TCC AAA AGC GCC TTC AAC GCC CTC CTC AAG					^C	540
val phe ile leu asp Glu ala his met leu ser lys ser ala phe asn ala leu leu lys						(137)

FIG. 4A-1

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[illegible]

FIG. 4A-2

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GAG CGC CTC GCC CGC CGC TCC GAC GCC TTA AGC CTG GAG GTG GCC CTC CTG GAG GCG GGA	1140
glu arg leu ala arg arg ser asp ala leu ser leu glu val ala leu glu ala gly	(337)
AGG GCC CTG GCC GAG GCC CTA CCC CAG CCC CAG CCC GCT CCT TCC CCA GAG GTC GGC	1200
arg ala leu ala ala glu ala leu pro gln pro thr gly ala pro ser pro glu val gly	(357)
CCC AAG CCG GAA AGC CCC CCG ACC CCG GAA CCC CCA AGG CCC GAG GCG CCC GAC CTG	1260
pro lys pro glu ser pro thr pro pro glu pro arg pro glu ala pro asp leu	(377)
CGG GAG CGG TGG CGG GCC TTC CTC GAG GCC GGC CTC ACC CTA CGG GCC TTC GTG CGG	1320
arg glu arg trp arg ala phe leu glu ala leu arg pro thr leu arg ala phe val arg	(397)
GAG GCC CGC CCG GAG GTC CGG GAA GGC CAG CTC TGC CTC GCT TTC CCC GAG GAC AAG GCC	1380
glu ala arg pro glu val arg glu gly gln leu cys leu ala phe pro glu asp lys ala	(417)
TTC CAC TAC CGC AAG GCC TCG GAA CAG AAG GTG AGG CTC CTC CCC CTG GCC CAG GCC CAT	1440
phe his tyr arg lys ala ser glu gln lys val arg leu leu pro leu ala gln ala his	(437)
frameshift site	
TTC GGG GTG GAG GAG GTC CTC GTC GAG GGA GAA AAA AAA AGC CTG AGC CCA AGG	1500
phe gly val glu glu val leu val leu glu gly glu lys lys ser leu ser pro arg	(457)

FIG. 4B-1

REPLACEMENT SHEET

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CCC CGC CCG GCC CCA CCT CCT GAA GCG CCC GCA CCC CCG GGC CCT CCC GAG GAG GAG GTA	1560
pro arg pro ala pro ala pro pro glu ala pro ala pro pro gly pro pro glu glu val	(477)
GAG GCG GAG GAA GCG GCG GAG GAG GCG GCG GAG GAG GAG GAG GAG GAG GAG GAG GAG GAG	1620
glu ala glu glu ala ala pro glu glu ala pro glu ala leu arg arg val val arg leu	(497)
CTG GGG GGG CCG GTG CTC TGG GTG CCG GCG GCG GCG GCG GCG GCG GCG GCG GCG GCG GCG	1680
leu gly gly arg val leu trp val arg arg pro arg thr arg glu ala pro glu glu glu	(517)
CCC CTG AGC CAA GAC GAG ATA GGG GGT ACT GGT ATA TAA TGGGGGCATG ACGCGGACCAC	1740
pro leu ser gln asp glu ile gly gly thr gly ile *	(529)
CGACCTCGGA CAAGAGACCG TGGACAACAT CCTCAAGCGC CTCCGCCGTA TTGAGGGCCA	1820
GGTGCGGGGG CTCCAGAAGA TGGTGGCCGA GGGCCGCCCC TGCGACGAGG TCCTCACCCA	1880
GATGACCGCC ACCAAGAAGG CCATGGAGGC GCGGCCACC CTGATCCTCC ACGAGTTCCT	1940
GAACGTCTGC GCCGCCGAGG TCTCCGAGGG CAAGGTGAAC CCCAAGAAGC CCGAGGAGAT	2000
CGCCACCATG CTGAAGAACT TCATCTA	2027

FIG. 4B-2

REPLACEMENT SHEET

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GGG	CAG	GAG	CAC	GTG	AGC	GCC	CTC	TAC	CGC	CGC	TTC	CGC	CCC	CTC	ACC	TTC	CAG	GAG	GTG	GTG	51
GCC	TAC	CTC	TTC	TCC	GGG	CCC	AGG	CCC	AGG	GCC	AAG	GCC	ATC	CGG	GAG	GGG	AGG	CTC	GCC	CAG	111
ATG	GCG	GTG	GGG	TGC	CAG	GAC	GGG	GAA	GAC	CCC	CCT	TGC	GGG	GTC	ACC	CGG	AGG	CTC	CTC	GCC	171
GtG	CAG	AGG	GGC	GCC	CAC	CCG	AGG	GAC	GTG	GAC	ATT	GAC	GCC	GCC	GCC	TGC	CAC	TGC	CAG	GCG	231
GAG	GAC	GTG	CGG	GAG	CTG	AGG	GAA	AGG	ATC	AGG	ATC	CTC	GCC	CCC	CTC	TCT	GCC	CCC	AGG	AAG	291
GTC	TTC	ATC	CTG	GAC	GAG	GCC	CAC	CAC	ATG	CTC	TCC	AAA	AGC	GCC	TTC	AAC	GCC	CTC	CTC	AAG	351
ACC	CTG	GAG	GAG	CCC	CGG	CCC	CCC	CAC	GTG	CTC	TTC	GTG	TTC	GCC	ACC	ACC	GAG	CCC	GAG	AGG	411
ATG	CCC	ACC	ATC	ATC	CTC	TCC	CGC	CGC	ACC	CAG	CAC	TTC	CGC	TTC	CGC	CGC	CTC	ACG	GAG	GAG	471
GAG	ATC	GCC	TTT	AAG	CTC	CGG	CGC	CGC	ATC	CTG	GAG	GCC	GTG	GGG	CGG	GAG	GCG	GAG	GAG	GAG	531
GCC	CTC	CTC	CTC	CTC	GCC	CGC	CGC	CTG	GCG	GAC	GGG	GCC	CTT	AGG	GAC	GCG	GAA	AGC	CTC	CTG	591
GAG	CGC	TTC	CTC	CTC	CTC	GAA	GGC	GGC	CCC	CTC	ACC	CGG	AAG	GAG	GTG	GAG	CGC	GCC	CTA	GGC	651
TCC	CCC	CCA	GGG	ACC	GGG	GTG	GCC	GCC	GAG	ATC	GCC	GCC	TCC	CTC	GCG	AGG	GGG	AAA	ACG	GCG	711
GAG	GCC	CTG	GGC	CTC	GCC	CGG	CGC	CGC	CTC	TAC	GGG	GAA	GGG	TAC	GCC	CGC	AGG	AGC	CTG	GTC	771
TCG	GGC	CTT	TTG	GAG	GTG	TTC	CGG	CGG	GAA	GGC	CTC	TAC	GCC	GCC	TTC	GGC	CTC	GCG	GGA	ACC	831
CCC	CTT	CCC	GCC	CCG	CCG	CAG	GCC	GCC	CTG	ATC	GCC	GCC	ATG	ACC	GCC	CTG	GAC	GAG	GCC	ATG	891
GAG	CGC	CTC	GCC	CGC	CGC	TCC	GAC	GCC	GCC	TTA	AGC	CTG	GAG	GTG	GCC	CTC	CTG	GAG	GCG	GGA	951
AGG	GCC	CTG	GCC	GCC	GAG	GCC	CTA	CCC	CGC	CTA	CCC	CGC	ACG	GCG	GCT	CCT	TCC	CCA	GAG	GTC	1011
CCC	AAG	CCG	GAA	AGC	AGC	CCC	CCG	ACC	CCG	GAA	CCC	CCA	AGG	CCC	GAG	GAG	GCG	CCC	GAC	CTG	1071
CGG	GAG	CGG	TGG	CGG	GCC	TTC	CTC	CTC	GAG	GCC	CTC	AGG	CCC	ACC	CTA	CGG	GCC	TTC	GTG	CGG	1131
GAG	GCC	CGC	CGC	GAG	GTG	CGG	GAA	GGC	GAG	GCC	CAG	TGC	CTC	GCT	TTC	CCC	GAG	GAC	AAG	GCC	1191
TTC	CAC	TAC	CGC	AAG	GCC	TCG	GAA	CAG	GAA	CAG	AAG	GTG	AGG	CTC	CTC	CCC	CAG	GCC	CAT	GCC	1251
TTC	GGG	GTG	GAG	GAG	GTG	GTC	CTC	CTC	GTC	CTC	GTG	GAG	GGA	AAA	AAA	AGC	CTG	AGC	CCA	AGG	1311
CCC	CGC	CCG	GCC	CCA	CCT	CCT	GAA	GCG	CCC	CCC	GCA	CCC	CCG	GGC	CCT	CCC	GAG	GAG	GTA	GTA	1371
GAG	GCG	GAG	GAA	GCG	GCG	GAG	GAG	GAG	GCC	CCG	GAG	GAG	GCC	TTG	AGG	CGG	GTG	GTC	CGC	CTC	1431
CTG	GGG	GGG	GGG	GGG	GTG	CTC	TGG	GTG	CGG	CGG	CCC	AGG	ACC	CGG	GAG	GCG	CCG	GAG	GAG	GAA	1491
																					1551

(1590)

FIG. 4C

REPLACEMENT SHEET

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Met ser ala leu tyr arg arg phe arg pro leu thr phe gln glu val val gln glu 20
 his val lys glu pro arg glu leu lys ala ile arg glu leu ala gln ala tyr leu 40
 phe ser gly pro arg glu val val pro gly lys thr thr thr thr thr thr thr thr thr 60
 gly cys gln gly glu asp val val pro pro pro pro pro pro pro pro pro pro pro 80
 gly ala his pro asp val val val val val val val val val val val val val val 100
 arg glu leu arg glu arg his met leu ser lys val phe phe phe phe phe phe phe 120
 leu asp glu ala ala his his his his his his his his his his his his his his 140
 glu pro pro pro his val leu leu leu leu leu leu leu leu leu leu leu leu leu 160
 thr ile leu ser arg thr thr thr thr thr thr thr thr thr thr thr thr thr thr 180
 phe lys leu arg arg ile leu glu glu glu glu glu glu glu glu glu glu glu glu 200
 leu leu ala arg leu ala asp leu leu leu leu leu leu leu leu leu leu leu leu 220
 leu leu leu glu gly pro leu thr thr thr thr thr thr thr thr thr thr thr thr 240
 gly thr gly val ala glu ile ala ala ala ala ala ala ala ala ala ala ala ala 260
 gly leu ala arg arg leu tyr gly leu leu leu leu leu leu leu leu leu leu leu 280
 leu glu val phe arg glu glu gly leu leu leu leu leu leu leu leu leu leu leu 300
 ala pro pro gln ala leu ile ala ala ala ala ala ala ala ala ala ala ala ala 320
 ala arg arg ser asp ala leu pro gln pro pro pro pro pro pro pro pro pro pro 340
 ala ala glu ala leu pro pro pro pro pro pro pro pro pro pro pro pro pro pro 360
 glu ser pro pro thr pro pro pro pro pro pro pro pro pro pro pro pro pro pro 380
 trp arg ala phe leu glu ala leu leu leu leu leu leu leu leu leu leu leu leu 400
 pro glu val arg glu gly gln lys val arg leu leu leu leu leu leu leu leu leu 420
 arg lys ala ser glu gln lys val arg leu leu leu leu leu leu leu leu leu leu 440
 glu glu val val leu val leu glu gly glu lys lys lys lys lys lys lys lys lys 460
 ala pro pro pro glu ala pro ala pro pro pro pro pro pro pro pro pro pro pro 480
 glu ala ala glu glu ala pro glu glu glu glu glu glu glu glu glu glu glu glu 500
 arg val leu trp val arg arg pro arg thr arg glu ala pro glu glu glu glu glu 520
 gln asp glu ile gly gly thr gly ile

FIG. 4D

REPLACEMENT SHEET

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Met	ser	ala	leu	tyr	arg	arg	leu	arg	pro	leu	thr	phe	gln	glu	val	val	gly	gln	glu	20
his	val	lys	glu	pro	arg	leu	leu	arg	ile	arg	thr	gly	arg	leu	ala	gln	ala	tyr	leu	40
phe	ser	gly	pro	arg	gly	val	val	thr	thr	thr	thr	ala	arg	leu	ala	ala	met	ala	val	60
gly	cys	gln	gly	glu	asp	pro	pro	val	gly	val	cys	pro	his	leu	ala	ala	val	gln	arg	80
gly	ala	his	pro	asp	val	val	ile	asp	ile	asp	ala	ser	asn	ser	val	val	glu	asp	val	100
arg	glu	leu	arg	glu	arg	ile	his	leu	ala	pro	leu	ser	ala	pro	arg	lys	val	phe	ile	120
leu	asp	glu	ala	his	met	leu	ser	lys	ser	ala	phe	asn	ala	leu	leu	lys	thr	leu	glu	140
glu	pro	pro	pro	his	val	leu	leu	phe	val	thr	thr	arg	glu	pro	glu	arg	met	pro	pro	160
thr	ile	leu	ser	arg	thr	thr	gln	his	phe	arg	phe	arg	leu	thr	glu	glu	glu	ile	ala	180
phe	lys	leu	arg	arg	ile	thr	leu	ala	val	gly	arg	glu	ala	glu	glu	glu	ala	leu	leu	200
leu	leu	ala	arg	leu	ala	asp	leu	asp	leu	arg	asp	ala	glu	ser	leu	leu	glu	arg	phe	220
leu	leu	leu	glu	gly	pro	leu	leu	lys	lys	glu	val	glu	arg	ala	leu	gly	ser	pro	pro	240
gly	thr	gly	val	ala	glu	ile	ile	ala	ala	ser	leu	ala	arg	gly	lys	thr	ala	glu	ala	260
gly	leu	ala	arg	arg	leu	tyr	tyr	gly	gly	gly	tyr	ala	pro	arg	ser	leu	val	ser	gly	280
leu	glu	val	phe	arg	glu	glu	glu	ile	ala	ala	ala	phe	gly	leu	ala	gly	thr	pro	leu	300
ala	pro	pro	gln	ala	ala	leu	ile	met	met	thr	thr	ala	leu	asp	glu	ala	met	glu	arg	320
ala	arg	arg	ser	asp	ala	leu	leu	leu	thr	val	ala	ala	leu	leu	glu	ala	gly	arg	ala	340
ala	ala	glu	ala	leu	pro	pro	gln	thr	thr	ala	pro	pro	ser	pro	glu	val	gly	pro	lys	360
glu	ser	pro	pro	thr	pro	pro	glu	pro	pro	arg	pro	glu	ala	ala	pro	asp	leu	arg	glu	380
trp	arg	ala	phe	leu	glu	ala	ala	pro	arg	pro	thr	leu	arg	ala	phe	val	arg	glu	ala	400
pro	glu	val	arg	glu	gly	gln	gln	leu	cys	leu	ala	phe	pro	glu	asp	lys	ala	phe	his	420
arg	lys	ala	ser	glu	gln	lys	lys	val	arg	leu	leu	pro	leu	ala	gln	ala	his	phe	gly	440
glu	glu	val	val	leu	val	leu	leu	glu	gly	glu	lys	lys	lys	pro	asp	pro	lys	ala	pro	460
gly	pro	thr	ser																	464

FIG. 4E

REPLACEMENT SHEET

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Met	ser	ala	leu	tyr	arg	leu	arg	arg	pro	leu	thr	phe	gln	gln	val	gly	gln	glu	20
his	val	lys	glu	pro	arg	leu	gly	lys	ala	ile	arg	thr	gly	arg	ala	ala	tyr	leu	40
phe	ser	gly	pro	arg	glu	asp	val	pro	lys	thr	thr	ala	ala	met	ala	val	ala	val	60
gly	cys	gln	gly	glu	asp	val	asp	pro	cys	val	cys	pro	his	ala	ala	val	gln	arg	80
gly	ala	his	pro	asp	val	val	ile	asp	ile	pro	ala	ser	asn	ser	val	glu	asp	val	100
arg	glu	leu	arg	glu	arg	met	arg	leu	leu	ala	leu	ser	ala	pro	lys	val	phe	ile	120
leu	asp	glu	ala	his	met	leu	leu	ser	lys	phe	thr	asn	ala	leu	lys	thr	leu	glu	140
glu	pro	pro	pro	his	val	val	leu	val	phe	ala	thr	thr	gln	pro	arg	met	pro	pro	160
thr	ile	leu	ser	arg	thr	thr	thr	his	arg	phe	arg	arg	leu	thr	glu	glu	ile	ala	180
phe	lys	leu	leu	arg	ile	thr	ile	leu	ala	gly	arg	gln	ala	glu	glu	ala	leu	leu	200
leu	leu	ala	arg	leu	ala	ala	asp	ala	leu	val	arg	ala	gln	ser	leu	glu	arg	phe	220
leu	leu	leu	glu	gly	pro	pro	pro	arg	lys	glu	val	gln	arg	ala	leu	gly	ser	pro	240
gly	thr	thr	gly	ala	ala	glu	leu	ala	ser	leu	ala	arg	gly	lys	thr	ala	glu	ala	260
gly	leu	ala	arg	arg	leu	leu	tyr	gly	gly	tyr	ala	pro	arg	ser	leu	val	ser	gly	280
leu	glu	val	phe	arg	arg	glu	glu	leu	ala	ala	phe	gly	leu	ala	gly	thr	pro	leu	300
ala	pro	pro	gln	ala	ala	leu	ile	ala	met	thr	ala	leu	asp	glu	ala	met	glu	arg	320
ala	arg	arg	ser	asp	ala	ala	leu	ser	leu	val	ala	leu	leu	glu	ala	gly	arg	ala	340
ala	ala	glu	ala	leu	pro	pro	pro	thr	gly	ala	pro	ser	pro	glu	val	gly	pro	lys	360
glu	ser	pro	pro	thr	pro	glu	glu	pro	arg	pro	glu	glu	ala	pro	asp	leu	arg	glu	380
trp	arg	ala	phe	leu	glu	glu	glu	leu	pro	thr	leu	arg	ala	phe	val	arg	glu	ala	400
pro	glu	val	arg	glu	gly	gly	gln	leu	cys	leu	phe	pro	glu	asp	lys	ala	phe	his	420
arg	lys	ala	ser	glu	gln	gln	lys	val	arg	leu	pro	leu	ala	gln	ala	his	phe	gly	440
glu	glu	val	val	leu	val	val	leu	glu	gly	lys	lys	lys	ala	ala	ala	his	phe	gly	454

FIG. 4F

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FIG. 5A

REPLACEMENT
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E.coli	ALDVEQIRHQLEHILNEEHIAHEPRALQLLARAAGEGLRDALSLTDQAIASGDGQ--VST	234
H.inf.	...ET..SQH.A...TQ.N.PF.DP..VK..K.Q..I..S.....M..R.--.TN	234
B.sub.	RITSQA.VGRMNK.VDA.QLQV.EGS.EII.S..H.GM.....L....SFSGDI--LKV	234
C.cres.	RVEPDVLVKHFDR.SAK.GARI.MD..A.I.....V..G..L....VQTERGQT.TS	293
M.gen.	KITSDL.LER.ND.AKK.K.KI.KD..IKI.DLSQ.....G..L..LAI.LIVKKL.LL	235
T.th.	R.TE.E.AFK.RR..EAVGREA.EE..L....L.D.A....E..LERFLLLEGP---LTR	229
E.coli	QAVSAMLGTLDDDDQALSVEAMVEANGERVMAINEAAARGIEWEALLVEMLGLLHRIAM	294
H.inf.	NV..N...L...NYSVDILY.LHQG...LL.RTLQRV.DAAGD.DK..G.CAEK..Q..L	294
B.sub.	EDALLIT.AVSQLYIGK.AKSLHDK.VSDALETL..LLQQ.KDPAK.IED.IFYFRDMLL	294
C.cres.	TV.RD...LA.RS.TIA.Y.HVMAGKTKDALEGFRALWGF.ADPVVMLDV.DHC.AS.V	353
M.gen.	MLKKHLISLIEMQNL.L.KQFYQ.I	260
T.th.	KE.ERA..SPPGTGVAEIAASLARGKTAELG.ARRLYGE.YAPRS.VSGL.EVVFREGLY	289

FIG. 5B

REPLACEMENT SHEET

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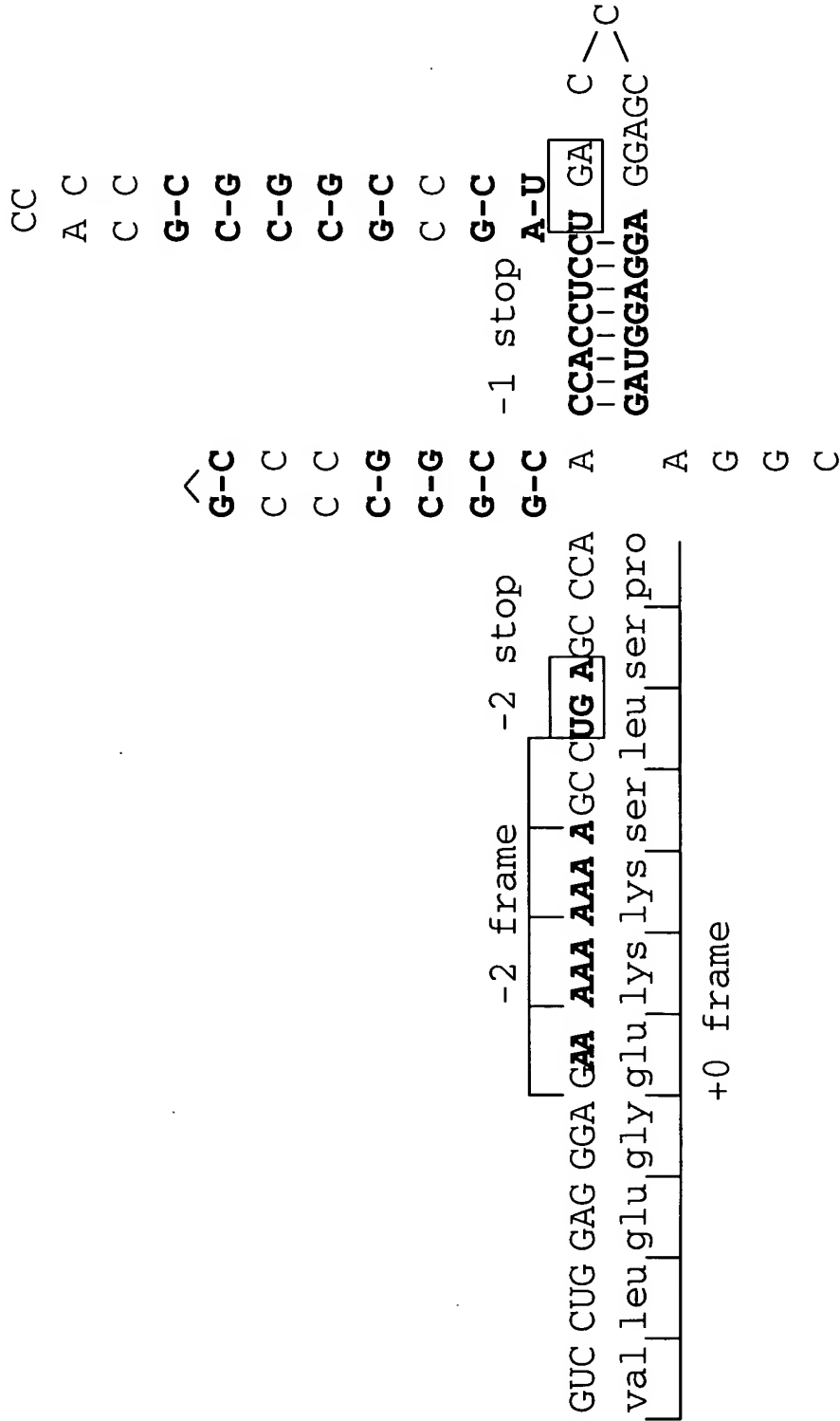


FIG. 6

REPLACEMENT SHEET

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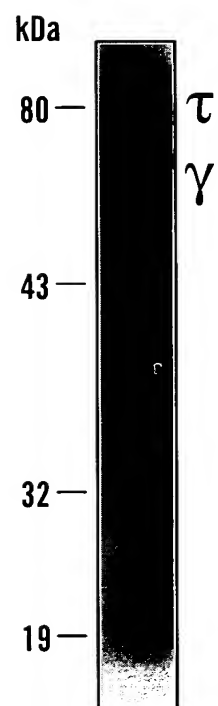


FIG. 7

REPLACEMENT SHEET

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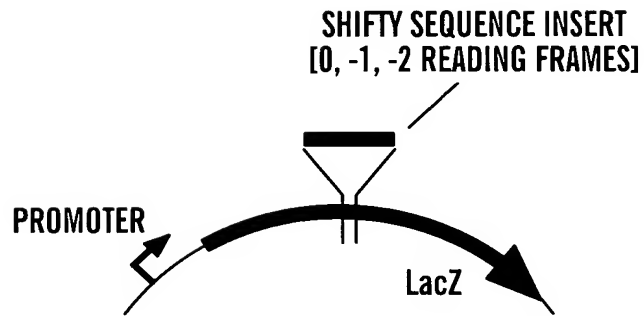


FIG. 8A

	READING FRAME	BLUE	WHITE
SHIFTY SEQUENCE	0	+	
	-1	+	
	-2	+	
MUTANT SEQUENCE	0	++	
	-1		+
	-2		+

FIG. 8B

REPLACEMENT SHEET

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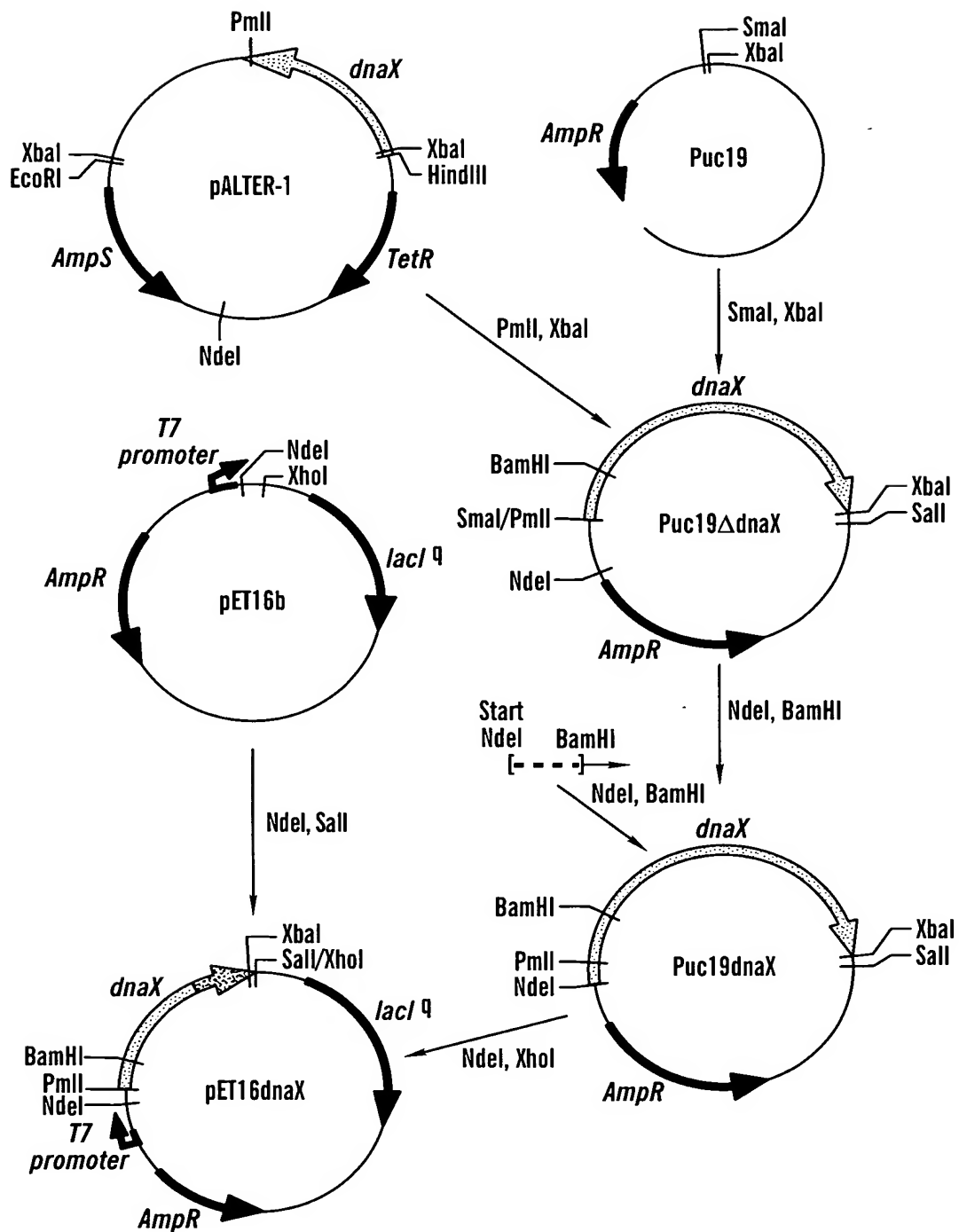
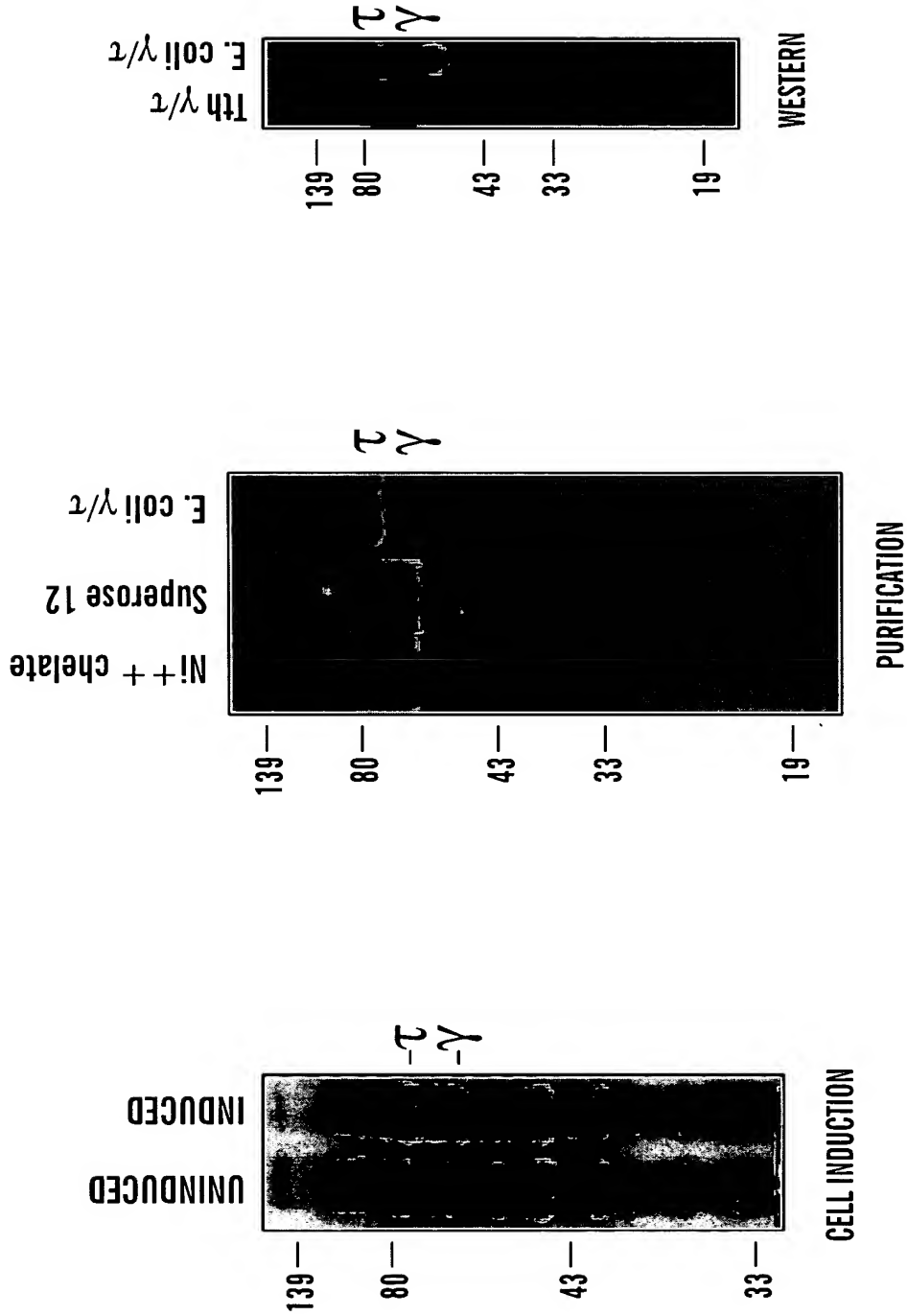


FIG. 9

REPLACEMENT
SHEET

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REPLACEMENT SHEET

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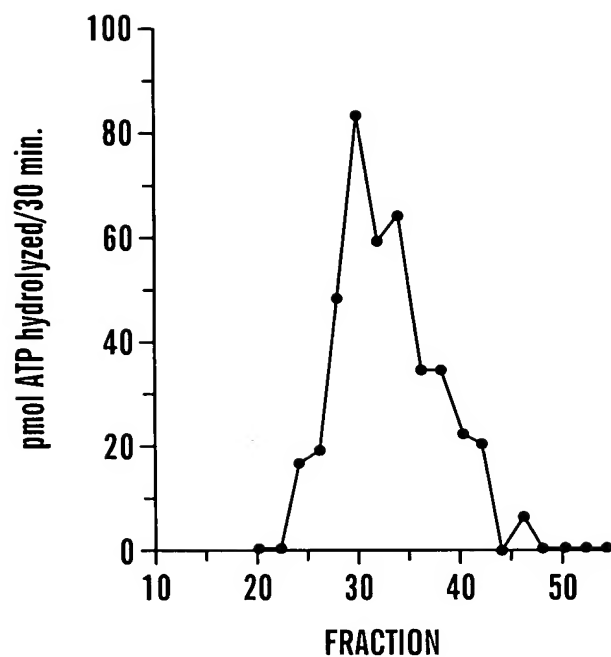


FIG. 11A

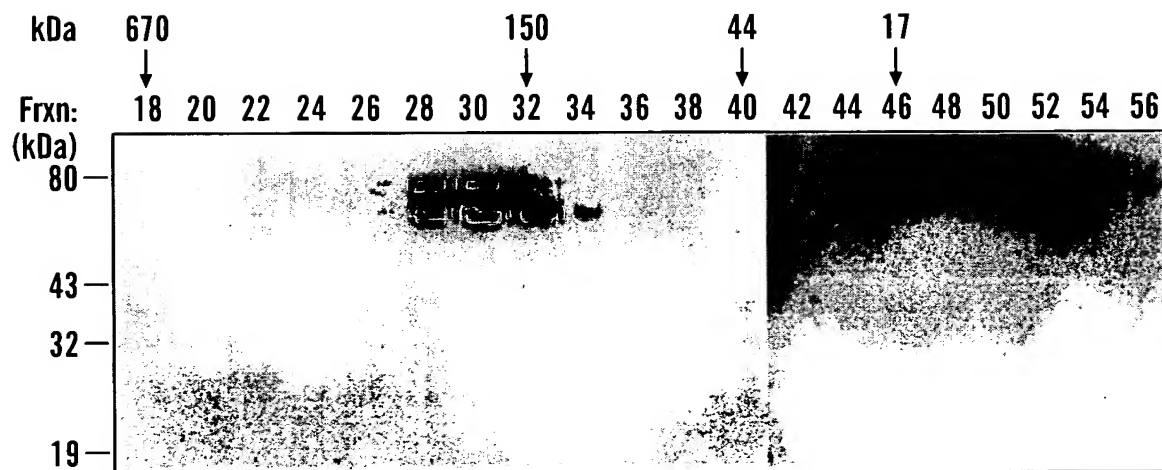


FIG. 11B

REPLACEMENT SHEET

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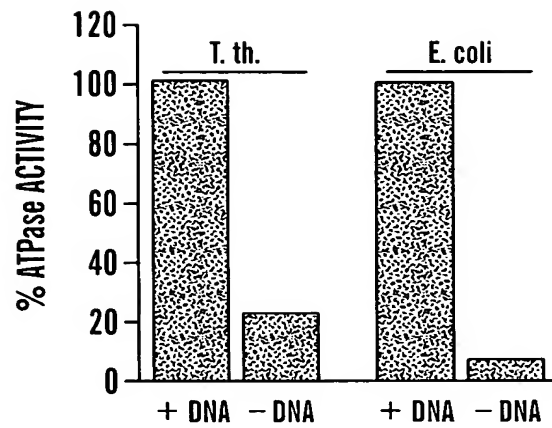


FIG. 12A

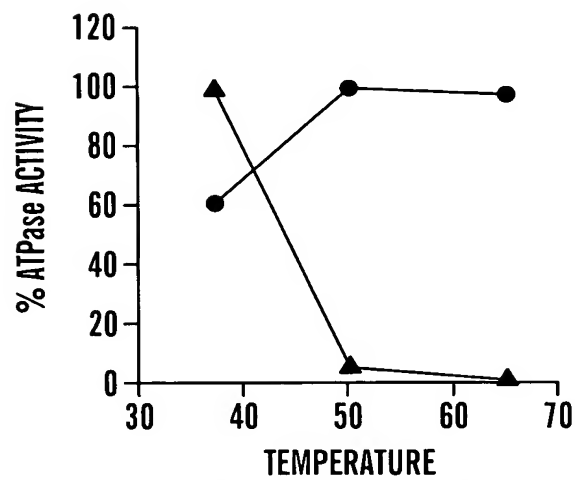


FIG. 12B

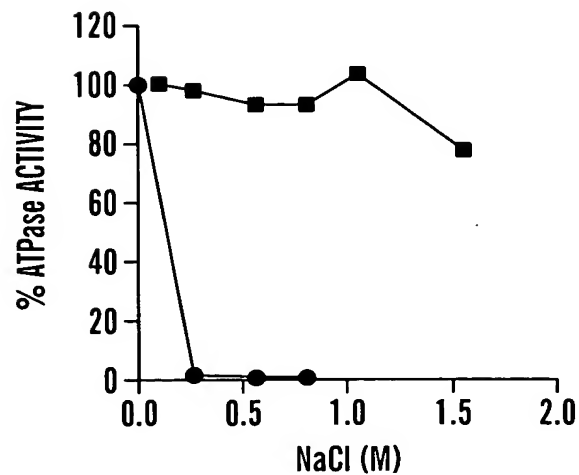


FIG. 12C

REPLACEMENT
SHEET

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FIG. 13A

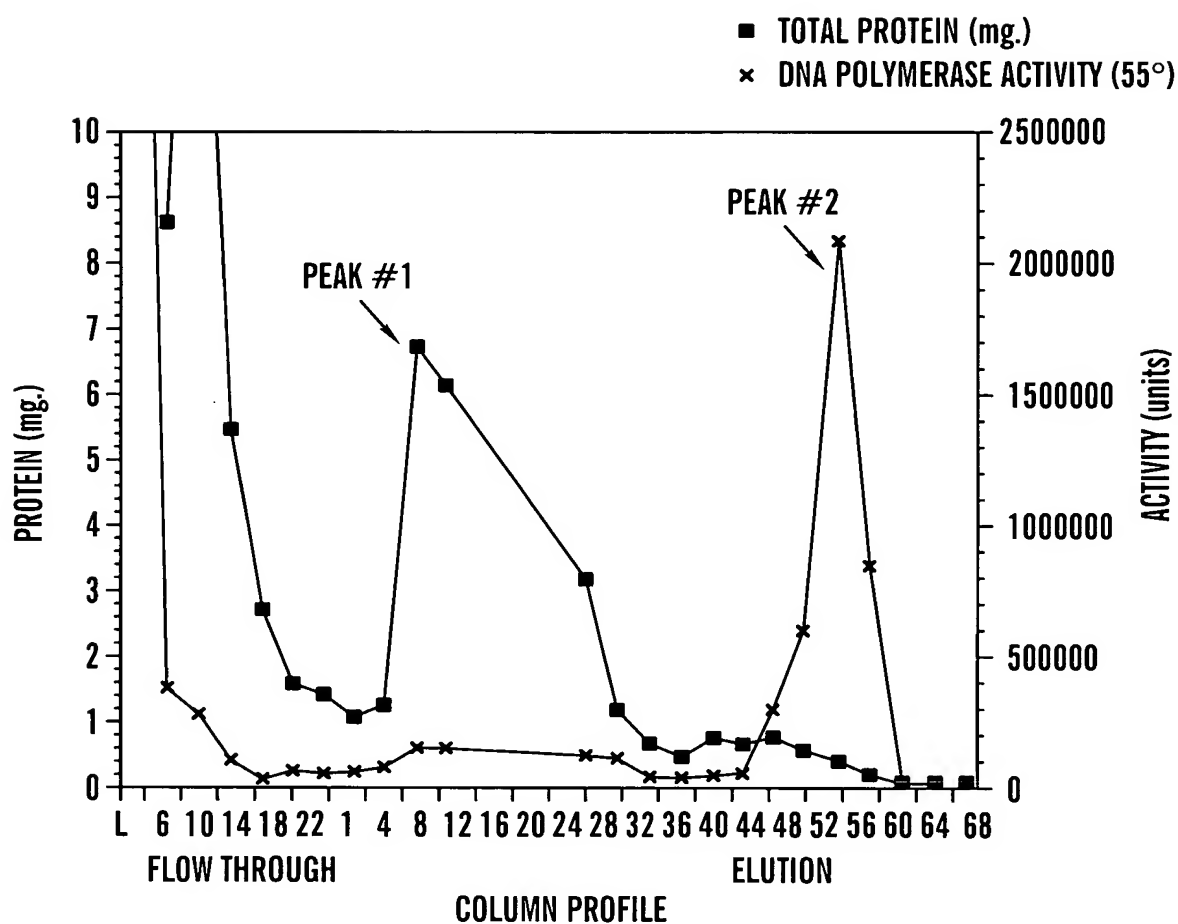


FIG. 13B

ATP AGAROSE STEP COLUMN

REPLACEMENT SHEET

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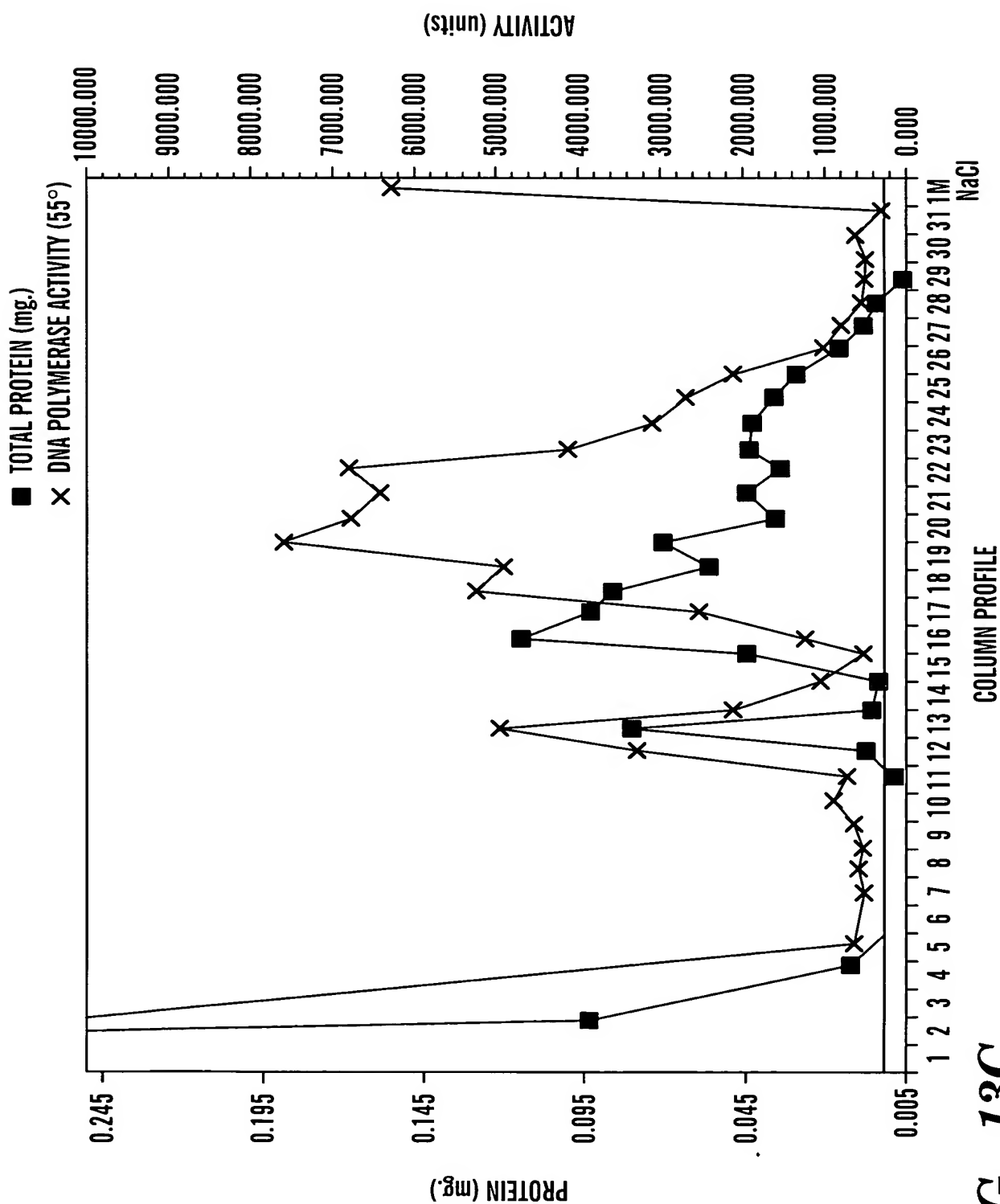


FIG. 13C

REPLACEMENT
SHEET

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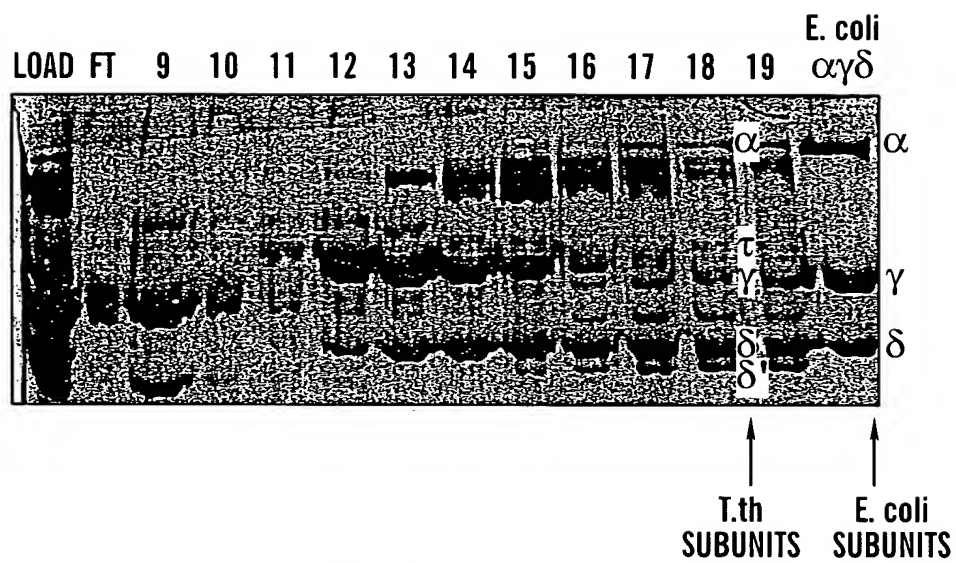


FIG. 14A

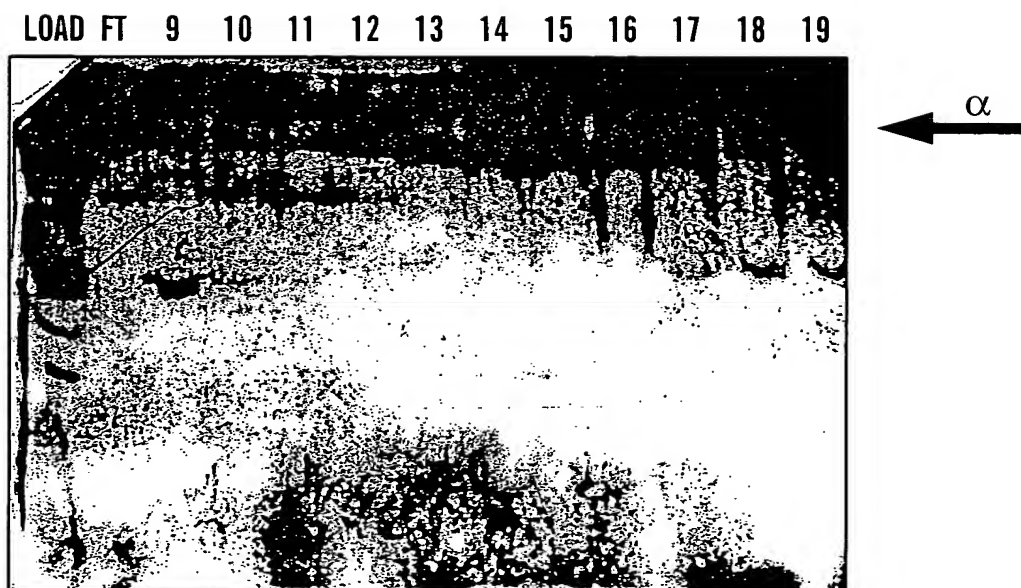


FIG. 14B

Alignment of TTH1 with alphas subunits of other organisms.

E.coli	DRYFLELIRTGRPDEESYLHAAVELAEARGLPVV	197	(ID#72)
V.chol.	DHFYLELIRTGRADEESYLHFALDVAEQYDLPVV	197	(ID#73)
H.inf.	DHFYALSRTGRPNEERYIQAAALKLAERCDDLPLV	197	(ID#74)
R.prow.	DRFYFEIMRHDLPPEEQFIENSYIQIASELSIPIV	195	(ID#75)
H.pyl.	DDFYLEIMRHGILDQRFIDEQVIKMSLETGLKII	213	(ID#76)
S.sp.	DDYYLEIQDHGSVEDRLVNINLVKIAQELDIKIV	202	(ID#77)
M.tub.	DNYFLELMDHGLTIERRVRDGLLEIGRALNIPPL	220	(ID#78)
T.th.	FFIEIQNHGLSEQK		(ID#61)

FIG. 15A

Alignment of TTH2 with alphas subunits of other organisms.

E.coli	NKRRAKNGEPPLDIAAIPLDDKKSFDMQLQRSETTAVFQLESRGMKD	618	(ID#79)
V.chol.	NPRLKKAGKPPVRIEAIPLDDARSFRNLQDAKTTAVFQLESRGMKE	618	(ID#80)
H.inf.	NVRMVREGKPRVDIAAIPLDDPESFELLKRSETTAVFQLESRGMKD	618	(ID#81)
R.prow.	CKLLKEQGIKIDFDDMTFFDDKKTYQMLCKGKGVGVFQFESIGMKD	624	(ID#82)
H.pyl.	LKIIKTQHKISVDFLSLDMDDPKVYKTIQSGDTVIGIFQIES - GMFQ	648	(ID#83)
S.sp.	QERKALQIRARTGSKKL PDDVVKKTHKLL EAGDLEGIFQLESQGMKQ	643	(ID#84)
M.tub.	IDNVRANRGIDL DLESVPLDDKATYELLGRGDTLGVFQLDGGPMRD	646	(ID#85)
T.th.	RVELDYDALTLDD		(ID#60)

FIG. 15B

REPLACEMENT SHEET

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ATGGGCCGGGAGCTCCGCTTCGCCCACCTCCACCAGCACA	
CCCAGTTCTCCCTCCTGGACGGGGCGGCGAAGCTTTCCGA	
CCTCCTCAAGTGGGTCAAGGAGACGACCCCCGAGGACCCC	120
GCCTTGGCCATGACCGACCACGGCAACCTCTTCGGGGCCG	
TGGAGTTCTACAAGAAGGCCACCGAAATGGGCATCAAGCC	
CATCCTGGGCTACGAGGCCTACGTGGCGGGCGGAAAGCCGC	240
TTTGACCGCAAGCGGGGAAAGGGCCTAGACGGGGGCTACT	
TTACCTCACCCCTCCTCGCCAAGGACTTCACGGGGGTACCA	
GAACCTGGTGCGCCTGGCGAGCCGGGCTTACCTGGAGGGG	360
TTTTACGAAAAGCCCCGGATTGACCGGGAGATCCTGCGCG	
AGCACGCCGAGGGCCTCATCGCCCTCTCGGGGTGCCTCGG	
GGCGGAGATCCCCCAGTTCATCCTCCAGGACCGTCTGGAC	480
CTGGCCGAGGCCCCGGCTCAACGAGTACCTCTCCATCTTCA	
AGGACCGCTTCTTCATCGAGATCCAGAACCACGGCCTCCC	
CGAGCAGAAAAAGGTCAACGAGGTCCTCAAGGAGTTCGCC	600
CGAAAGTACGGCCTGGGGATGGTGGCCACCAACGACGGCC	
ATTACGTGAGGAAGGAGGACGCCCCGCGCCACGAGGTCCT	
CCTCGCCATCCAGTCCAAGAGCACCCCTGGACGACCCCGGG	720
CGCTGGCGCTTCCCCCTGCGACGAGTTCTACGTGAAGACCC	
CCGAGGAGATGCGGGGCCATGTTCCCCGAGGAGGAGTGGGG	
GGACGAGCCCTTTGACAACACCGTGGAGATCGCCCGCATG	840
TGCAACGTGGAGCTGCCCATCGGGGACAAGATGGTCTACC	
GAATCCCCCGCTTCCCCCTCCCCGAGGGGCGGACCGAGGC	
CCAGTACCTCATGGAGCTCACCTTCAAGGGGCTCCTCCGC	960
CGCTACCCGGACCGGATCACCGAGGGCTTCTACCGGGAGG	
TCTTCCGCCTTTTGGGGAAGCTTCCCCCCCACGGGGACGG	
GGAGGCCTTGCCCGAGGCCTTGCCCCAGGTGGAGCGGGAG	1080
GCTTGGGAGAGGCTCATGAAGAGCCTCCCCCCTTTGGCCG	
GGGTCAAGGAGTGGACGGCGGAGGCCATTTTCCACCGGGC	
CCTTTACGAGCTTTCCGTGATAGAGCGCATGGGGTTTCCC	1200
GGCTACTTCCTCATCGTCCAGGACTACATCAACTGGGCCC	
GGAGAAACGGCGTCTCCGTGGGGCCCCGGCAGGGGGAGCGC	
CGCCGGGAGCCTGGTGGCCTACGCCGTGGGGATCACCAAC	1320
ATTGACCCCTCCGCTTCGGCCTCCTCTTTGAGCGCTTCC	
TGAACCCGGAGAGGGTCTCCATGCCCGACATTGACACGGA	
CTTCTCCGACCGGGAGCGGGACCGGGTGATCCAGTACGTG	1440
CGGGAGCGCTACGGCGAGGACAAGGTGGCCCAGATCGGCA	
CCCTGGGAAGCCTCGCCTCCAAGGCCGCCCTCAAGGACGT	
GGCCCCGGGTCTACGGCATCCCCACAAGAAGGCGGAGGAA	1560
TTGGCCAAGCTCATCCCGGTGCAGTTCGGGAAGCCCAAGC	
CCCTGCAGGAGGCCATCCAGGTGGTGCCGGAGCTTAGGGC	
GGAGATGGAGAAGGACCCCAAGGTGCGGGAGGTCTTCGAG	1680
GTGGCCATGCGCCTGGAGGGCCTGAACCGCCACGCCTCCG	
TCCACGCCGCCGGGGTGGTGATCGCCGCCGAGCCCCTCAC	
GGACCTCGTCCCCCTCATGCGCGACCAGGAAGGGCGGCCC	1800
GTCACCCAGTACGACATGGGGGCGGTGGAGGCCTTGGGGC	
TTTTGAAGATGGACTTTTTGGGCCTCCGCACCCTCACCTT	

FIG. 16A

REPLACEMENT SHEET

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CCTGGACGAGGTCAAGCGCATCGTCAAGGCGTCCCAGGGG	1920
GTGGAGCTGGACTACGATGCCCTCCCCCTGGACGACCCCA	
AGACCTTCGCCCTCCTCTCCCGGGGGGAGACCAAGGGGGT	
CTTCCAGCTGGAGTCGGGGGGGATGACCGCCACGCTCCGC	2040
GGCCTCAAGCCGCGGCGCTTTGAGGACCTGATCGCCATCC	
TCTCCCTCTACCGCCCCGGGCCCATGGAGCACATCCCCAC	
CTACATCCGCCGCCACCACGGGCTGGAGCCCGTGAGCTAC	2160
AGCGAGTTTCCCCACGCCGAGAAGTACCTAAAGCCCATCC	
TGGACGAGACCTACGGCATCCCCGTCTACCAGGAGCAGAT	
CATGCAGATCGCCTCGGCCGTGGCGGGGTACTCCCTGGGC	2280
GAGGCGGACCTCCTGCGGCGGTCCATGGGCAAGAAGAAGG	
TGGAGGAGATGAAGTCCCACCGGGAGCGCTTCGTCCAGGG	
GGCCAAGGAAAGGGGCGTGCCCGAGGAGGAGGCCAACC GC	2400
CTCTTTGACATGCTGGAGGCCTTCGCCAACTACGGCTTCA	
ACAAATCCCACGCTGCCGCCTACAGCCTCCTCTCCTACCA	
GACCGCCTACGTGAAGGCCCACTACCCCGTGGAGTTCATG	2520
GCCGCCCTCCTCTCCGTGGAGCGGCACGACTCCGACAAGG	
TGGCCGAGTACATCCGCGACGCCCGGGCCATGGGCATAGA	
GGTCCTTCCCCCGGACGTCAACCGCTCCGGGTTCGACTTC	2640
CTGGTCCAGGGCCGGCAGATCCTTTTCGGCCTCTCCGCGG	
TGAAGAACGTGGGCGAGGCGGCGGGAGGCCATTCTCCG	
GGAGCGGGAGCGGGGCGGCCCTACCGGAGCCTCGGCGAC	2760
TTCTTCAAGCGGCTGGACGAGAAGGTGCTCAACAAGCGGA	
CCCTGGAGTCCCTCATCAAGGCGGGCGCCCTGGACGGCTT	
CGGGGAAAGGGCGCGGCTCCTCGCCTCCCTGGAAGGGCTC	2880
CTCAAGTGGGCGGCCGAGAACC GGGAGAAGGCCCGCTCGG	
GCATGATGGGCCTCTTCAGCGAAGTGGAGGAGCCGCCTTT	
GGCCGAGGCCGCCCCCTGGACGAGATCACCCGGCTCCGC	3000
TACGAGAAGGAGGCCCTGGGGATCTACGTCTCCGGCCACC	
CCATCTTGCGGTACCCCGGGCTCCGGGAGACGGCCACCTG	
CACCCTGGAGGAGCTTCCCCACCTGGCCCCGGGACCTGCCG	3120
CCCCGGTCTAGGGTCCTCCTTGCCGGGATGGTGGAGGAGG	
TGGTGCGCAAGCCCAAAAGAGCGGCGGGATGATGGCCCG	
CTTCGTCTCTCCGACGAGACGGGGGCGCTTGAGGCGGTG	3240
GCATTCGGCCGGGCTACGACCAGGTCTCCCCGAGGCTCA	
AGGAGGACACCCCCGTGCTCGTCCTCGCCGAGGTGGAGCG	
GGAGGAGGGGGGCGTGCGGGTGCTGGCCCAGGCCGTTTGG	3360
ACCTACGAGGAGCTGGAGCAGGTCCCCCGGGCCCTCGAGG	
TGGAGGTGGAGGCCTCCCTCCTGGACGACCGGGGGGTGGC	
CCACCTGAAAAGCCTCCTGGACGAGCACGCGGGGACCCTC	3480
CCCCGTGTACGTCCGGGTCCAGGGCGCCTTCGGCGAGGCC	
TCCTCGCCCTGAGGGAGGTGCGGGTGGGGGAGGAGGCTGT	
AGGCGGCCGCGTGGTTCGGGGCCTACCTCCTGCCCGACCG	3600
GGAGGTCCCTTCTCCAGGGCGGCCAGGCGGGGGAGGCCAG	
GAGGCGGTGCCCTTCTAGGGGGTGGGCCGTGAGACCTAGC	
GCCATCGTTCTCGCCGGGGGCAAGGAGGCCTGGGCCCGAC	3720
CCCTTTTGG	

FIG. 16B

REPLACEMENT SHEET

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MGRELRF AHLHQHTQFSLLDGAPKLSDLLKWVEETTPEDP	
ALAMTDHGNLFGAVEFYKKATEMGIKPILGYEAYVAAESR	
FDRKRKGKLDGGYFHLTLLAKDFTGYQNLVRLASRAYLEG	120
FYEKPRIDREILREHAEGLIALSGCLGAEIPQFILQDRLD	
LAEARLNEYLSIFKDRFFIEIQNHGLPEQKKVNEVLKEFA	
RKYGLGMVATNDGHYVRKEDARAHEVLLAIQSKSTLDDPG	240
ALALPCEEFYVKTPEEMRAMFPEEEVGGRSPLTTPWRS PH	
VQRGAAIGTRWSTRI PRFPLPEGRTEAQYLMELTFKGLLR	
RYPDRITEGFYREVFRLSGKLP PHGDGEALAEALAQVERE	360
AWERLMKSLPPLAGVKEWTAEAI FHRALYELSAIERMGFP	
GLLPHRPG LHQLGPEKGVSVGPGRGGAAGSLVAYAVGITN	
IDPLRFGLL FERFLNPERVSM PDIDTDFSDRERDRVIQYV	480
RERYGEDKVAQIGTLGSLASKAALKEVARVYGI PRKKAEE	
LAKLIPVQFGKPKPLQEA IQVVP ELRAEMEKDPKVREVLE	
VAMRLEGLNRHASVHAGRGGVFSEPLTDLVPLCATRKGGP	600
YTQYDMGAVEALG LLKMDFLGLR TLTF LDEVKRIVKASQG	
VELDYDALPLDDPKTFALLSRGETKGVFQLESGGMTATLR	
GLKPRRFEDLIAILSLYRPGPMEHIPTYIRRHHGLEPVS Y	720
SEFPHAEKYLKPILDETYGIPVYQEQIMQIASAVAGYSLG	
EADLLRRSMGKKKVEEMKSHRERFVQAKERGVPEEEANR	
LFDMLEAFANYGFNKSHAAAYSLLSYQTAYVKAHYPVEFM	840
AALLSVERHDSKVAEYIRDARAMGIEVLPPDVNRSGFDF	
LVQGRQILFGLSAVKNVGEAAAEAILRERERGGPYRSLGD	
FLKRLDEKVLNKR TLESLIKAGALDGFGERARLLASLEGL	960
LKWAAENREKARSGMMGLFSEVEEPPLAEAAPLDEITRLR	
YEKEALGIYVSGHPILRYPGLRETATCTLEELPHLARDLP	
PRSRVLLAGMVEEVVRKPTKSGGMMARFVLSDETGALEAV	1080
AFGRAYDQVSPRLKEDTPVLVLAEVEREEGGVRVLAQAVW	
TYQELEQVPRALEVEVEASLPDDRGV AHLKSLLDEHAGTL	
PLYVRVQGA FGEALLALREVRVGEEALGALEAAGFPAYLL	1200
PNREVSPRLTGSGGPRGRALSTGLALKTYPIALPGGNEAL	
ARPLL	

FIG. 16C

REPLACEMENT SHEET

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	Start1	Start2	3' -Exo I		3' -Exo II		3' -Exo IIIC
T.th.	VERVRTLDDGRFLLEEGVGLWEWRYPPFLEGEAVVLDLETTGLAG-----LDEVIEVGLLRLEGG---RRLPF						
D.rad.			PWPQDVVFDLETTGFSPA-----SAAIVEIGAVRIVGGQIDETLKF				
Bac.sub.	HGIKMIYMEANLVDDGVPIAYNAAHRLLEEETVVFDDVETTGLSAV-----YDTIIELAAVKVKGE--IIDKF						
H.inf.			MINPNRQIVLDTETTTGMNQLGAHYEGHCHIEIGAVELINRR-YTGNNX				
E.c.			MSTAITRQIVLDTETTTGMNQIGAHSEGHKIIIEIGAVEVVNRR-LTGNNF				
H.py1.	NLEYLKACGLNFIETSENLITLKNLKTPLKDEVFSFIDLETTGSCPI-----KHEILEIGAVQVKGE--IINRF						
T.th.	QSLVR-PLPP---AEARSWNLT---GIPREALLEEAPSLSEEVLEKAYPLRGDATLV VIHNAAFDLGFL -RPALEGLG						
D.rad.	ETLVR-PTRPDGMSLIPWQAQRVHGISDEMVRRAPAXKDVLPDFFDFVDGSAAV AHNVSFDGGFM -RAGAERLG						
Bac.sub.	EAFAN-PHRP---LSATIIELT---GITDDMLQDAPDVVDVIRDFREWIGDDILV AHNASFDMGFL -NVAYKKLL						
H.inf.	HIYIK-PDRP---XDPDAIKVH---GITDEMLADKPEFKEVAQDFLDYINGAELL LIHNAPFDVGFM -DYEFRKLN						
E.c.	HVYLK-DRLV---DPEAFGVH---GIAVDFLLDKPTFAEVAVEFMDYIRGAELV VIHNAAFDIGFM -DYEFSLLK						
H.py1.	ETLVKVKVSP-----DYIAELT---GITYEDTLNAPSAHEALQELRLFLGNSV FAHNANFDYNFL GRYFVEKLH						
T.th.	-----YRLENPVVDSLRLARRGLPLRRYGLDALSEVLELPRRT-- CHRALEDVERT LAVVHEVYVMLT-----SG						
D.rad.	-----LSWAPERELCTMQLSRRAFPFRERTHNLTVLAERLGLEFAPGGR HRRSYGDVQV TAQAYLRLLELLG-----ER						
Bac.sub.	E---VEKAKNPVIDTLELGRFLYPEFKNHRNLTLCKKFDIELTQ-- HHRAIYDTE ATAYLLKMLKDA-----EK						
H.inf.	-LNVKTDDICLVTDTLQMARQMPGKRN-NLDALCDRLGIDNSKRTL HGALLDAE ILADVLYLMMTGGQTNLFDEEE						
E.c.	RDIAKTNTFCKVTDLSLAVARKMFPGKRN-SLDALCARYEIDNSKRTL HGALLDAQ ILAEVYLAMTGGQTSMAFAME						
H.py1.	-----CPLLNLKLTLDLSKRAILSMRY-SLSFLKELLGFGIEV-- SHRAYADAL ASYKLFEICLLNLP--SYIKT						

FIG. 17

REPLACEMENT SHEET

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ATGGTGGAGCGGGTGGTGCGGACCCTTCTGGACGGGAGGT 40
TCCTCCTGGAGGAGGGGGTGGGGCTTTGGGAGTGGCGCTA
CCCCTTTCCCCTGGAGGGGGAGGCGGTGGTGGTTCCTGGAC 120
CTGGAGACCACGGGGCTTGCCGGCCTGGACGAGGTGATTG
AGGTGGGCCTCCTCCGCCTGGAGGGGGGGAGGCGCCTCCC 200
CTTCCAGAGCCTCGTCCGGCCCCCTCCCCGCCCGCCGAAGCC
CGTTCGTGGAACCTCACCGGCATCCCCCGGGAGGCCCTGG 280
AGGAGGCCCCCTCCCTGGAGGAGGTTCTGGAGAAGGCCTA
CCCCCTCCGCGGCGACGCCACCTTGGTGATCCACAACGCC 360
GCCTTTGACCTGGGCTTCCTCCGCCCCGGCCTTGGAGGGCC
TGGGCTACCGCCTGGAAAACCCCGTGGTGGACTCCCTGCG 440
CTTGGCCAGACGGGGCTTACCAGGCCTTAGGCGCTACGGC
CTGGACGCCCTCTCCGAGGTCCTGGAGCTTCCCCGAAGGA 520
CCTGCCACCGGGCCCTCGAGGACGTGGAGCGCACCCCTCGC
CGTGGTGCACGAGGTATACTATATGCTTACGTCCGGCCGT 600
CCCCGCACGCTTTGGGAACTCGGGAGGTAG

FIG. 18A

MVERVVRTLLDGRFLLEEGVGLWEWRYPFPLEGEAVVVD 40
LETTGLAGLDEVIEVGLLRLEGGRRLPFQSLVRPLPPAEA
RSWNLTGIPREALEEAPSLEEVLKAYPLRGDATALVIHNA 120
AFDLGFLRPALEGLGYRLNPVVDLRLARRGLPGLRRYG
LDALSEVLELPRRTCHRALEDVERTLAVVHEVYYMLTSGR 200
PRTLWELGRZ

FIG. 18B

REPLACEMENT SHEET

Alignment of dnaA genes.

P. mar.	MLEASWEK	VQSSL--KQNLK--	-----PSYE	TWIRPTEFG--FKN	GELTLIAPNSPSSAW	LKNMYSQTIQETAE-	65
Syn. sp.	MVSCENLWQQ	ALAIL--ATQLTK--	-----PAFD	TWIKASVLIS--LGD	GVATIQVENGFVLNH	LQKSYGPLLMEVLT-	67
B. sub.	MENILDWNQ	ALAQI--EKKLSK--	-----PSFE	TWMKSTKAHS--LQG	DTLTITAPNEFARDW	LESRYLHLIADTIY-	67
M. tub.	MTDDPGSGFTTWNA	VVSELNGDPKVDGDP	SSDANLSAPLTPQQR	AWNLVQPLT--IVE	GFALLSVSPSFVQNE	IERHLRAPITDALS-	87
T. th.	MSHEAVWQH	VLEHI--RRSITE--	-----VEFH	TWFERIRPLG--IRD	GVLELAVPTSFALDW	IRRHVAGLIQEGPR-	66
E. coli	MSLSLWQQ	CLARL--QDELPA--	-----TEFS	MWIRPLQAE--LSD	NTLALYAPNRFVLWD	VRDKYLNININGLLT-	64
T. mar.	MKER	ILQEI--KTRVNR--	-----KSWE	LWFSSFDVKS--IEG	NKVVFSGNLFKEW	LEKKYYSVLSKAVK-	61
H. pyl.	MDTNNNIEKE	ILALVKQNPVSL--	-----IEYE	NYFSQLKYNPNASKS	DIAFFYAPNQVLCTT	ITAKYGALLKEILSQ	72
P. mar.	EIFG---	EPVTVHVK	VKANAESSDEHYSSA	P-----	ITPPLEASPGSV	DSSGSSLRLSK----	130
Syn. sp.	DLTG---	QEITVKLI	TDGLEPHS---	LIGQ	E-----	SSLPMETTP----	115
B. sub.	ELTG---	EELSIFV	IPQNQDVEDFMKPKQ	VKKAVKEDTSDFPQN	-----	-----MLNPKYTFDT	119
M. tub.	RRLGH-QIQLGVR	IA	PPATDEADDTTVPPS	ENPATTSPDITTDND	EIDDSAAARGDNQHS	WPSYFTERPHNTDSA	176
T. th.	LLGAQ-APRFELRW	PGVVQEDIFQPPPS	PPAQAP-----	-----	-----	-----EDTFKT	108
E. coli	SFCGADAPQLRFEVG	TKPVTQTPQAAVTSN	VAAPQAQVAQTQPQRA	APSTRSGWDNVPAPA	EP-----	-----TYRSNVNVKHTFDN	140
T. mar.	VVLG---	NDATFEIT	YEAFEPHSSSYSEPLV	KKRAVLLTP-----	-----	-----LNPDYTFEN	106
H. pyl.	NKVG-MHLAHSVDVR	IEVAPKIQINAQSN	NYKAIKTS-----	-----	-----	-----VKDSYTFEN	118
P. mar.	FVVGPNSRMAHAAAM	AVAESPGREFNPLFI	CGGVGLGKTHLMQAI	GHYRLIDPGAKVSY	VSTETFTNDLIL--A	IRQDRMQAFDRYR-	217
Syn. sp.	FVVGPTNRMMAHAASL	AVAESPGREFNPLFL	CGGVGLGKTHLMQAI	AHYRLEMYPNAKVY	VSTERFTNDLIT--A	IRQDNMEDFRSYR-	202
B. sub.	FVIGSGNRFMAHAASL	AVAEAPAKAXNPLFI	YGGVGLGKTHLMHAI	GHYVIDHNPSAKVY	LSSEKFTNEFIN--S	IRDNKAVDFNRNRYR-	206
M. tub.	FVIGASNRFMAHAASL	AIAEAPARAXNPLFI	WGESGLGKTHLLHAA	GNVAQRLFPGMRVKY	VSTEEFTNDFIN--S	LRDDRKVAFKRSYR-	263
T. th.	SNWGPPTPWPHGGAV	AVAESPGRAYNPLFI	YGGRLGKTYLMHAV	GPLRAKRFPHMRLEY	VSTETFTNELINRPS	AR-DRMTEFRERYR-	196
E. coli	FVEGKSQNLARAAAR	QVADNPGGAXNPLFL	YGGTGLGKTHLLHAV	GNGIMARKPNKAVVY	MHSERFVQDMVK--A	LQNNAIIEEFKRYR-	227
T. mar.	FVVGPGNSFAYHAAL	EVAKHPGR--YNPLFI	YGGVGLGKTHLLQSI	GNVYVQNEPDLRVMY	ITSEKFLNDLVD--S	MKEGKLNFEFREKYRK	193
H. pyl.	FVVGSCNNTVYEIAK	KVAQSDTPPYNPLVF	YGGTGLGKTHILNAI	GNHALEK--HKKVVL	VTSEDFLTDFLK--H	LDNKTMDSFKAKYR-	203

FIG. 19A

REPLACEMENT SHEET

P.mar.	AADLILVDDIQFIEG	KEYTQEEFFHTFNAL	HDAGSQIVLASDRPP	SQIPRLQERLMSRFS	MGLIADVQAPDLETR	MAILQKKAHERVGL	307
Syn.sp.	SADFLLLIDDIQFIKG	KEYTQEEFFHTFNAL	HEAGKQVWVASDRAP	QRIPGLQDRLLSRFS	MGLIADIQVPDLETR	MAILQKKAEDRIRL	292
B.sut.	NVDVLLIDDIQFLAG	KEQTQEEFFHTFNAL	HEESKQIVISSDRPP	KEIPTLEDRLRSRFE	WGLITDITPPDLETR	TAILRKKAKAEGLDI	296
M.tub.	DVDVLLVDDIQFIEG	KEGIQEEFFHTFNAL	HNANKQIVISSDRPP	KQATLEDRLRTRFE	WGLITDVQPPELETR	TAILRKKQAQMERLAV	353
T.th.	SVDLLLVDDVQFIAG	KERTQEEFFHTFNAL	YEAHKQIILSSDRPP	KDILTLEARLRSRFE	WGLITDNPAPELETR	TAILKKNAS-SGPED	285
E.coli	SVDALLIDDIQFFAN	KERSQEEFFHTFNAL	LEGNQQIILTSRYP	KEINGVEDRLKSRFG	WGLITVAIEPPPELETR	VAILMKKADENDIRL	317
T.mar.	KVDILLIDDVQFLIG	KTGVQTELFHTFNEL	HDSGKQIVICSUREP	QKLSEFQDRLLVSRFQ	MGLIVAKLEPPDEETR	KSIARKMLEIEHGEL	283
H.pyl.	HCDFLLDDAQFLQG	KPKLEEEFFHTFNEL	HANSKQIVLISDRSP	KNIAGLEDRLKSRFE	WGITAKVMPDLETK	LSIVKQKCQLNQITL	293
P.mar.	PRDLIQFIAGRFTSN	IRELEGALTRAIAFA	SITGLPMTVDISIAPM	LD-----PNGQGEVET	PKQVLDKVAEVFKVT	PDEMRSASRRR-PVS	392
Syn.sp.	PKEVIEYIASHYTSN	IRELEGALIRAIAYT	SLSNVAMTVENIAPV	LN-----PPVEKVAAA	PETIITIVAQHYQLK	VEELLSNSRRR-EVS	377
B.sut.	PNEVMLYIANQIDSN	IRELEGALIRVWAYS	SLINKDINADLAEEA	LKDII-PSSKPKVIT	IKETIQRVVQQQFNK	LEDFKAKKRTK-SVA	384
M.tub.	PDDVLELIASSIERN	IRELEGALIRVTAF	SLNKTPIDKALAEIV	LRDLI-ADANTMQIS	AATIMAATAEYFDTT	VEELRGPGKTR-ALA	441
T.th.	PEDALEYIARQVTSN	IREWEGALMRASPFA	SLNGVELTRAVAAKA	LRHLR-P--RELEAD	PLEIIRKAAAGPVRPE	TPGGAHGERRKKEVV	372
E.coli	PGEVAFFIAKRLRSN	VRELEGALNRVIANA	NFTGRAITIDFVREA	LRDLL-A-LQEKLV	IDNIQKTVAEYKIK	VADLLSKRRSR-SVA	404
T.mar.	PEEVNLFVAENVDDN	LRRLRGAIKILLVYK	ETTGKEVDLKEAILL	LKDFIKPNRVKAMDP	IDELIEIVAKVTGVP	REEILSNSRNV-KAL	372
H.pyl.	PEEVMEYIAQHISDN	IRQMEGAIKISVNA	NLMNASIDLNLAKTV	LEDL--QKDHAEGSS	LENILLAVAQSLNLK	SSEIKVSSRQK-NVA	380
P.mar.	QARQVGMVLMRQGTN	LSLPRIGDTFGGKDH	TTVMYAIEQVEKKLS	S-----DPQIA	SQVQKIRDLLQIDSR	RKR----	461
Syn.sp.	LARQVGMVLMRQHTD	LSLPRIGEAFGGKDH	TTVMYSCDKITQLQQ	K-----DWETS	QTLTSLSHRINIAGQ	APES----	447
B.sut.	FPRQIAMVLSREMTD	SSLPKIGEEFGGRDH	TTVIHAHEKISKLLA	D-----DEQLQ	QHVKEIKEQLK----	446	
M.tub.	QSRQIAMVLCRELT	LSLPKIGQAFG-RDH	TTVMYAQRKILSEMA	E-----RREVF	DHVKELTTRIRQSK	R-----	507
T.th.	LPRQLAMVLRVRELTP	ASLPEIGQLFGGRDH	TTVRYAIQKVQELAG	KP-----DREVQ	GLLRTLREACTDPVD	NLWITCG	446
E.coli	RPRQMAMALAKELTN	HSLPEIGDAFGGRDH	TTVLHACRKIEQLRE	E-----SHDIK	EDFSNLIRTLSS----	467	
T.mar.	TARRIGMYVAKNYLK	SSLRTIAEKFN-RSH	PVVVDSVKVKVDSLL	KG-----NKQLK	ALIDEVIGEISRRAL	SG-----	440
H.pyl.	LARKLVVYFARLYTP	NPTLSLAQFLDLKDH	SSISKMYSGVKKMLE	EEKSPFVLSLREEIK	NRLNELNDKKTAFNS	SE-----	457

FIG. 19B

REPLACEMENT
SHEET

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GTGTCGCACGAGGCCGTCTGGCAACACGTTCTGGAGCACA
TCCGCCGCAGCATCACCGAGGTGGAGTTCCACACCTGGTT
TGAAAGGATCCGCCCTTGGGGATCCGGGACGGGGTGCTG 120
GAGCTCGCCGTGCCCACCTCCTTTGCCCTGGACTGGATCC
GGCGCCACTACGCCGGCCTCATCCAGGAGGGCCCTCGGCT
CCTCGGGGGCCCAGGCGCCCCGGTTTGAGCTCCGGGTGGTG 240
CCCGGGGTCTAGTCCAGGAGGACATCTTCCAGCCCCCGC
CGAGCCCCCGGCCCAAGCTCAACCCGAAGATACCTTTAA
AACTTCGTGGTGGGGCCCAACAACCTCCATGGCCCCACGGC 360
GGCGCCGTGGCCGTGGCCGAGTCCCCCGGCCGGGCCTACA
ACCCCTCTTCATCTACGGGGGCCGTGGCCTGGGAAAGAC
CTACCTGATGCACGCCGTGGGCCCACTCCGTGCGAAGCGC 480
TTCCCCCACATGAGATTAGAGTACGTTTCCACGGAACTT
TCACCAACGAGCTCATCAACCGGCCATCCGCGAGGGACCG
GATGACGGAGTTCCGGGAGCGGTACCGCTCCGTGGACCTC 600
CTGCTGGTGGACGACGTCCAGTTCATCGCCGGAAAGGAGC
GCACCCAGGAGGAGTTTTTCCACACCTTCAACGCCCTTTA
CGAGGCCCAACAAGCAGATCATCCTCTCCTCCGACCGGCCG 720
CCCAAGGACATCCTCACCTGGAGGCGCGCCTGCGGAGCC
GCTTTGAGTGGGGCCTGATCACCGACAATCCAGCCCCCGA
CCTGGAAACCCGGATCGCCATCCTGAAGATGAACGCCAGC 840
AGCGGGCCTGAGGATCCCGAGGACGCCCTGGAGTACATCG
CCCGGCAGGTCACCTCCAACATCCGGGAGTGGAAGGGGC
CCTCATGCGGGCATCGCCTTTCGCCTCCCTCAACGGCGTT 960
GAGCTGACCCGCGCCGTGGCGGCCAAGGCTCTCCGACATC
TTCGCCCCAGGGAGCTGGAGGCGGACCCCTTGAGATCAT
CCGCAAAGCGGCGGGACCAGTTCGGCCTGAAACCCCGGGA 1080
GGAGCTCACGGGGAGCGCCGCAAGAAGGAGGTGGTCCTCC
CCCGGCAGCTCGCCATGTACCTGGTGCGGGAGCTCACCCC
GGCCTCCCTGCCCCGAGATCGACCAGCTCAACGACGACCGG 1200
GACCACACCACGGTCTCTACGCCATCCAGAAGGTCCAGG
AGCTCGCGGAAAGCGACCGGGAGGTGCAGGGCCTCCTCCG
CACCTCCGGGAGGCGTGCACATGA

FIG. 20A

REPLACEMENT
SHEET

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VSHEAVWQHVLEHIRRSITEVEFHTWFERIRPLGIRDGVL
ELAVPTSFALDWIRRHYAGLIQEGPRLPGAQAPRFELRVV
PGVVVQEDIFQPPSPPAQAQPEDTFKTSWWGPTTPWPHG 120
GAVAVAESPGRAYNPLFIYGGRGLGKTYLMHAVGPLRAKR
FPHMRLEYVSTETFTNELINRPSARDRMTEFRERYRSVDL
LLVDDVQFIAGKERTQEEFFHTFNALYEAHKQIILSSDRP 240
PKDILTLEARLRSRFEWGLITDNPAPDLETRIAILKMNAS
SGPEDPEDALEYIARQVTSNIREWEGALMRASPFASLNGV
ELTRAVAAKALRHLRPRELEADPLEIIRKAAGPVRPETPG 360
GAHGERRKKEVVLPRQLAMYLVRELTPASLPEIDQLNDDR
DHTTVLYAIIQKVQELAESDREVQGLLRTLREACT

FIG. 20B

REPLACEMENT SHEET

34/83

ATGAACATAACGGTTCCCAAAAACTCCTCTCGGACCAGC	40
TTTCCCTCCTGGAGCGCATCGTCCCCTCTAGAAGCGCCAA	
CCCCCTCTACACCTACCTGGGGCTTTACGCCGAGGAAGGG	120
GCCTTGATCCTCTTTCGGGACCAACGGGGAGGTGGACCTCG	
AGGTCCGCCTCCCCGCCGAGGCCCAAAGCCTTCCCCGGGT	200
GCTCGTCCCCGCCAGCCCTTCTTCCAGCTGGTGCGGAGC	
CTTCTGGGGACCTCGTGGCCCTCGGCCTCGCCTCGGAGC	280
CGGGCCAGGGGGGGCAGCTGGAGCTCTCCTCCGGGCGT	
CCGCACCCGGCTCAGCCTGGCCCCCTGCCGAGGGCTACCCC	360
GAGCTTCTGGTGCCCCGAGGGGGAGGACAAGGGGGCCTTCC	
CCCTCCGGACGCGGATGCCCTCCGGGGAGCTCGTCAAGGC	440
CTTGACCCACGTGCGCTACGCCGCGAGCAACGAGGAGTAC	
CGGGCCATCTTCCGCGGGGTGCAGCTGGAGTTCTCCCCC	520
AGGGCTTCCGGGCGGTGGCCTCCGACGGGTACCGCCTCGC	
CCTCTACGACCTGCCCCCTGCCCAAGGGTTCCAGGCCAAG	600
GCCGTGGTCCCCGCCCGGAGCGTGGACGAGATGGTGCGGG	
TCCTGAAGGGGGCGGACGGGGCCGAGGCCGTCTCGCCCT	680
GGGCGAGGGGGTGTTGGCCCTGGCCCTCGAGGGCGGAAGC	
GGGGTCCGGATGGCCCTCCGCCTCATGGAAGGGGAGTTCC	760
CCGACTACCAGAGGGTTCATCCCCCAGGAGTTCGCCCTCAA	
GGTCCAGGTGGAGGGGGAGGCCCTCAGGGAGGCGGTGCGC	840
CGGGTGAGCGTCTCTCCGACCGGCAGAACCAACGGGGTGG	
ACCTCCTTTTGGAGGAAGGCCGGATCCTCCTCTCCGCCGA	920
GGGGGACTACGGCAAGGGGCAGGAGGAGGTGCCCGCCAG	
GTGGAGGGGCCGGACATGGCCGTGGCCTACAACGCCCGCT	1000
ACCTCCTCGAGGCCCTCGCCCCCGTGGGGGACCGGGCCCA	
CCTGGGCATCTCCGGGGCCACGAGCCCGAGCCTCATCTGG	1080
GGGGACGGGGAGGGGTACCGGGCGGTGGTGGTGCCCTCA	
GGGTCTAG	1128

FIG. 21A

**REPLACEMENT
SHEET**

35/83

MNITVPKKLLSDQLSLLERIVPSRSANPLYTYLGLYAEEG 40
ALILFGTNGEVDLEVRLPAEAQSLPRVLVPAQPFFQLVRS
LPGDLVALGLASEPGQGGQLELSSGRFRTRLAPAEGLYP 120
ELLVPEGEDKGAFPLRTRMPSGELVKALTHVRYAASNEEY
RAIFRGVQLEFSPQGFRAVASDGYRLALYDLPLPQGFQAK 200
AVVPARSVDEMVRVLKGADGAEAVLALGEGVLALALEGGS
GVRMALRLMEGEFPDYQRVIPQEFALKVQVEGEALREAVR 280
RVSVLSDRQNHVRVDLLLEEGRILLSAEGDYGKGQEEVPAQ
VEGPDMAVAYNARYLLEALAPVGDRAGLHGISGPTSPSLIW 360
GDGEGYRAVVVPLRVZ

FIG. 21B

REPLACEMENT SHEET

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T.th.beta	MNITVPKLLSDQLSLLERIVPSRSANPLYTYLGLYAEAGALILFGTNGEVDLEVRLPAE
E.coli.bet	MKFTVEREHLKPLQQVSGPLGGRPTLPILGNLLQVADGTLSTLTGTDLEMEMVARVALV
P.mirab.be	MKFIIEREQLKPLQQVSGPLGGRPTLPILGNLLKVTENTLSLTGTDLEMEMMARVSL
H.infl.bet	MQFSISRENLLKPLQQVCGVLSNRPNIPVLNNVLLQIEDYRLTITGTDLEVELSSQTQLS
P.put.beta	MHFTIQREALLKPLQLVAGVVERROTLPVLSNVLLVQGGQLSLTGTDLLEVELVGRVQLE
B.cap.beta	MKFTIQNDILTGNLKKITRVLVKNISFPILENILIQVEDGTLSLTNTNLEIELISKIEII
	* . * * * * * *
T.th.beta	AQSLP-RVLVPAQPPFFQLVRSPLPGDLVALGLASEPGQGQGLELSSGRFTRLSLAPAEY
E.coli.bet	QPHEPGATTVPARKFFDICRGLP-EGAEIAVQLE---GERMLVRSGRSFRSLSTLPAADF
P.mirab.be	QSHEIGATTVPARKFFDIWRGLP-EGAEISVELD---GDRLLVRSGRSFRSLSTLPASDF
H.infl.bet	SSSENGFTTIPAKKFLDICRTLS-DDSEITVTFE---QDRALVQSGRSRFFTLATQPAEEY
P.put.beta	EPAEPGEITVPARKLMDICKSLP-NDALIDIKVD---EQKLLVKAGRSRFFTLSTLPANDF
B.cap.beta	TKYIPGKTTISGRKILNICRTLS-EKSIKIMQLK---NKKMYISSENSNYILSTLSADTF
 * * *
T.th.beta	PELLVPEGEDKGAFPLRTRMPSGELVKALTHVRYAASNEEVYRAIFRGVQLEFSPOGFRVAV
E.coli.bet	PNLDD--WQSEVEFTLPQAT-----MKRLIEATQFSMAHQDVRYYLNGMLFETEGEELRTV
P.mirab.be	PNLDD--WQSEVEFTLPQAT-----LKRLIESTQFSMAHQDVRYYLNGMLFETENTEELRTV
H.infl.bet	PNLTD--WQSEVDFELPQNT-----LRLRIEATQFSMANQDARYFLNGMKFFETEGNLLRTV
P.put.beta	PTVEE--GPGSLTCNLEQSK-----LRLIERTSFAMAQQDVRYYLNGMLLLEVSRNTLRVAV
B.cap.beta	PNHQN--FDYISKFDISSNI-----LKEMIEKTEFSMGKQDVRYYLNGMLLLEKKDKFLRSV
	* * * . *
T.th.beta	ASDGYRLALYDLPLPQGFQA--KAVVPARSVDEMVRVLKGADGAEAVLALGEGVLALALE
E.coli.bet	ATDGHRLAVCSMPIGQSLPS-HSVIVPRKGVIELMRMLDG-GDNPLRVQIGSNNIRAHVG
P.mirab.be	ATDGHRLAVCAMDIGQSLPG-HSVIVPRKGVIELMRLLDGSGESLLQLQIGSNNLRAHVG
H.infl.bet	ATDGHRLAVCTISLEQELQN-HSVILPRKGVLELVRLLLET-NDEPARLQIGTNNLRVHLK
P.put.beta	STDGHRLALCSMSAPIEQEDRHQVIVPRKGVILELARLLTD-PEGMVSIVLGQHHIRATTG
B.cap.beta	ATDGYRLAISYTQLKKDINF-FSIIIPNKAVMELKLLNT-QPQLLNILIGSNSIRIYTK
	.. * * * * * *

FIG. 22A

REPLACEMENT SHEET

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T.th.beta	GGSGVRMALRLMEGEFPDYQORVIPQEFALKVQVEGEALREAVRRVSVLSDRQNHRRVDLLL
E.coli.bet	---DFIFTSKLVDFRFPDYRRVLPKNPDKHLKLEAGCDLLKQAFARAAILSNEKFRGVRLYV
P.mirab.be	---DFIFTSKLVDFRFPDYRRVLPKNPTKTVIAGCDILKQAFSRAAILSNEKFRGVRLNL
H.infl.bet	---NTVFTSKLIDGRFPDYRRVLPKNATKIVEGNWEMLKQAFARASILSNERARSVRLSL
P.put.beta	---EFTFTSKLVDFRFPDYRRVLPKGGDKLVVGDQRQALREAFSRTAILSNKYRGIRLQL
B.cap.beta	---NLIFTTQLIEGEYPDYKSVLFKEKKNPITNSILLKKSLLRVAAILAHEKFCGIEIKI
	. . . * . . . * . . . * . . . * . . . * . . . * . . . *
T.th.beta	EEGRILLSAEGDYGK-GQEEVPAQVEGPDMAVAYNARYLLEALAPVG-DRAHLGISGPTS
E.coli.bet	SENQLKITANNPEQEEAEIILDVITYSGAEMEIGFNVSYVLDVNLALKCENVRMMLTDSVS
P.mirab.be	TNGQLKITANNPEQEEAEIIVDVQYQGEEMEIGFNVSYLLDVLNLTLCCEEVKLLLTDAVS
H.infl.bet	KENQLKITASNTEHEEAEIIVDVNNGEELVGFNVTVYILDVNLALKCNQVRMCLTDAFS
P.put.beta	AAGQLKIQANNPEQEEAEIISVDYEGSSLEIGFNVSYLLDVLGVTTEQVRLILSDSNS
B.cap.beta	ENGKFKVLSDNQEEETAEDLFEIDYFGEKIEISINVYYLLDVINNICKSENIALFLNKSXS
 * . . . * . . . * . . . * . . . * . . . *
T.th.beta	PSLIWGDG-EGYRAVVVPLRVZ (ID#108)
E.coli.bet	SVQIEDAASQSAAYVVMPLRLZ (ID#109)
P.mirab.be	SVQVENVASAAAAAYVVMPLRL- (ID#110)
H.infl.bet	SCLIENCEDSSCEYVIMPLRL- (ID#111)
P.put.beta	SALLQEAGNDSSSYVVMPLRL- (ID#112)
B.cap.beta	SIQIEAENNSSNAYVVMPLLR- (ID#113)
 * . . . *

FIG. 22B

REPLACEMENT
SHEET

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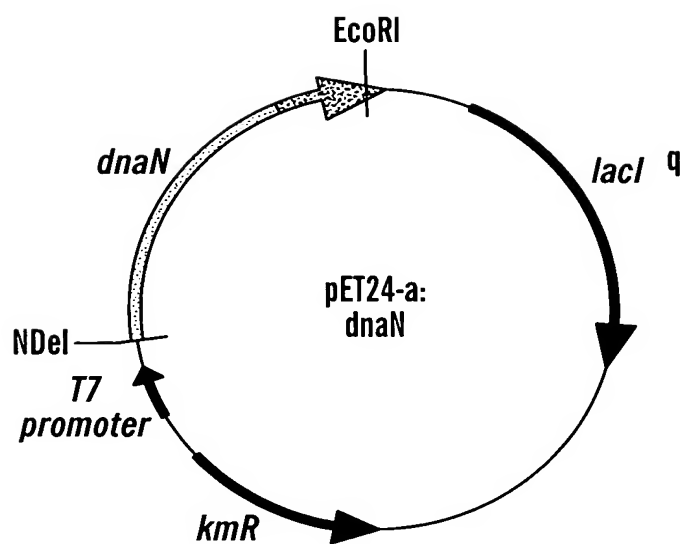


FIG. 23

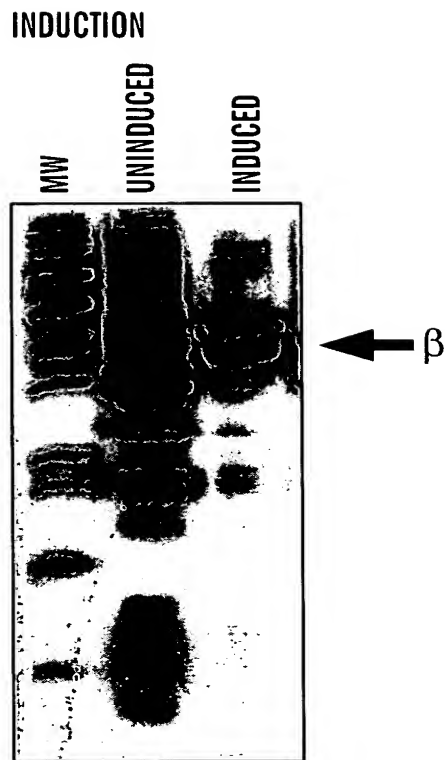


FIG. 24A

LYSIS

HEAT STEP

MonoQ COLUMN

FRACTION: 5 7 9 11 13 15 17 19 21 23 25



FIG. 24B

REPLACEMENT SHEET

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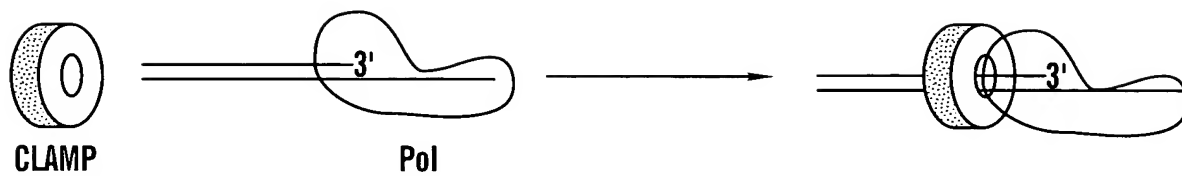


FIG. 25A

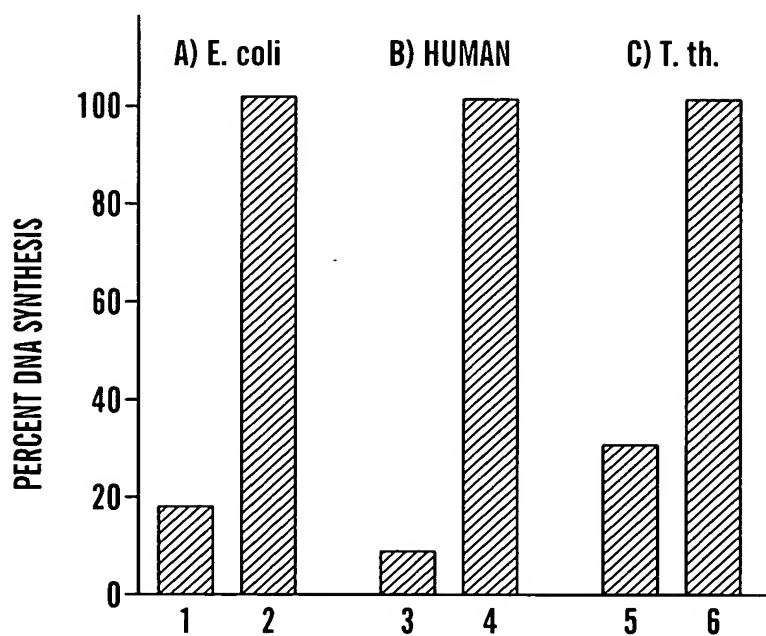


FIG. 25B

REPLACEMENT
SHEET

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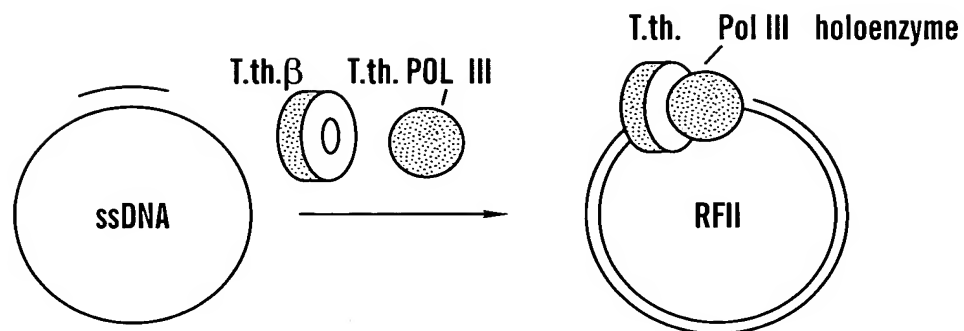


FIG. 26A

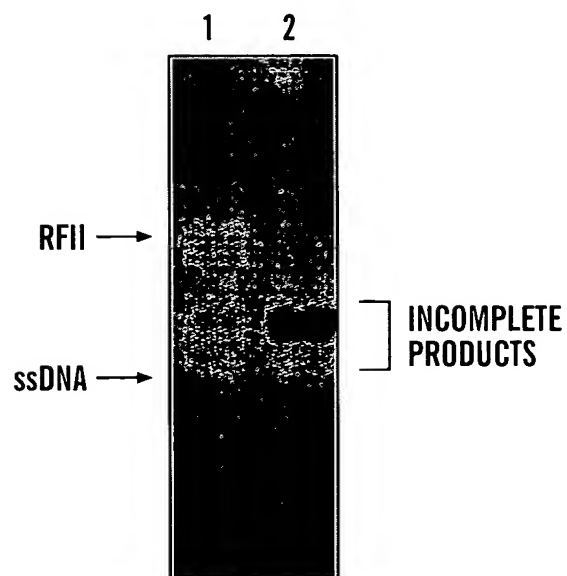


FIG. 26B

REPLACEMENT SHEET

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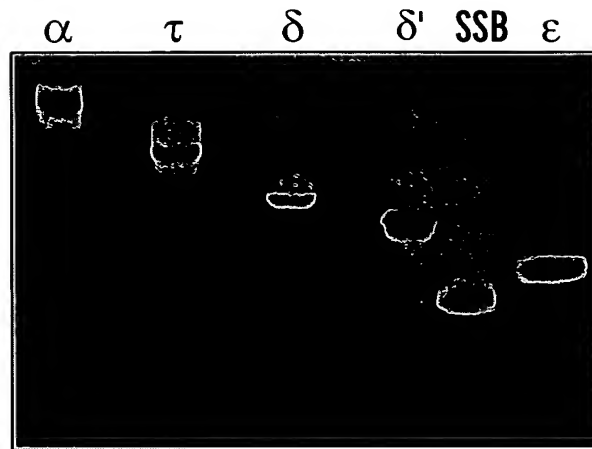


FIG. 27



FIG. 28

REPLACEMENT
SHEET

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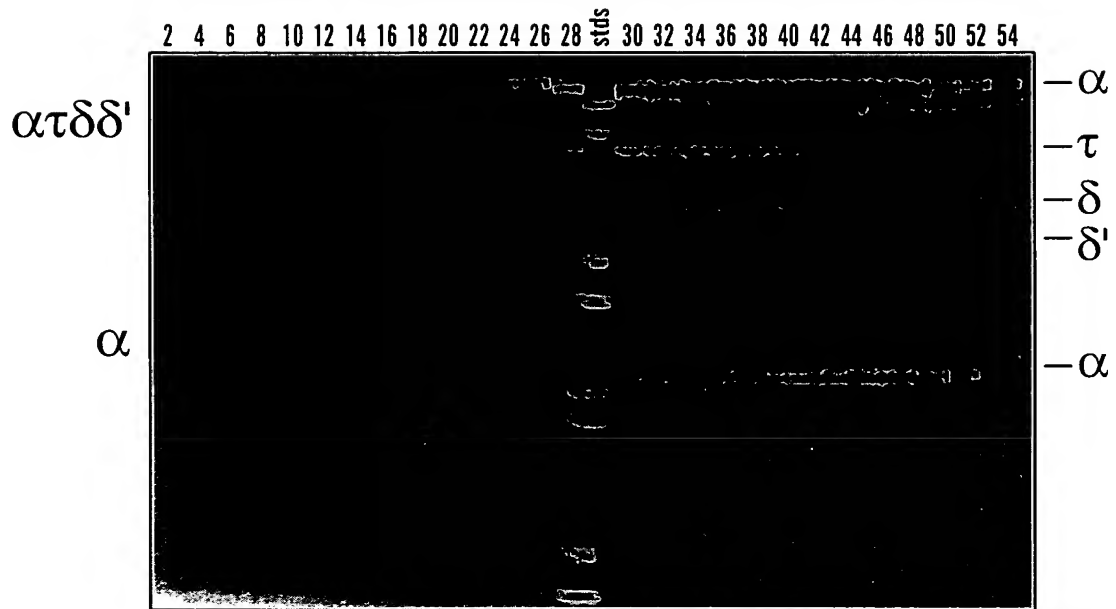


FIG. 29

REPLACEMENT
SHEET

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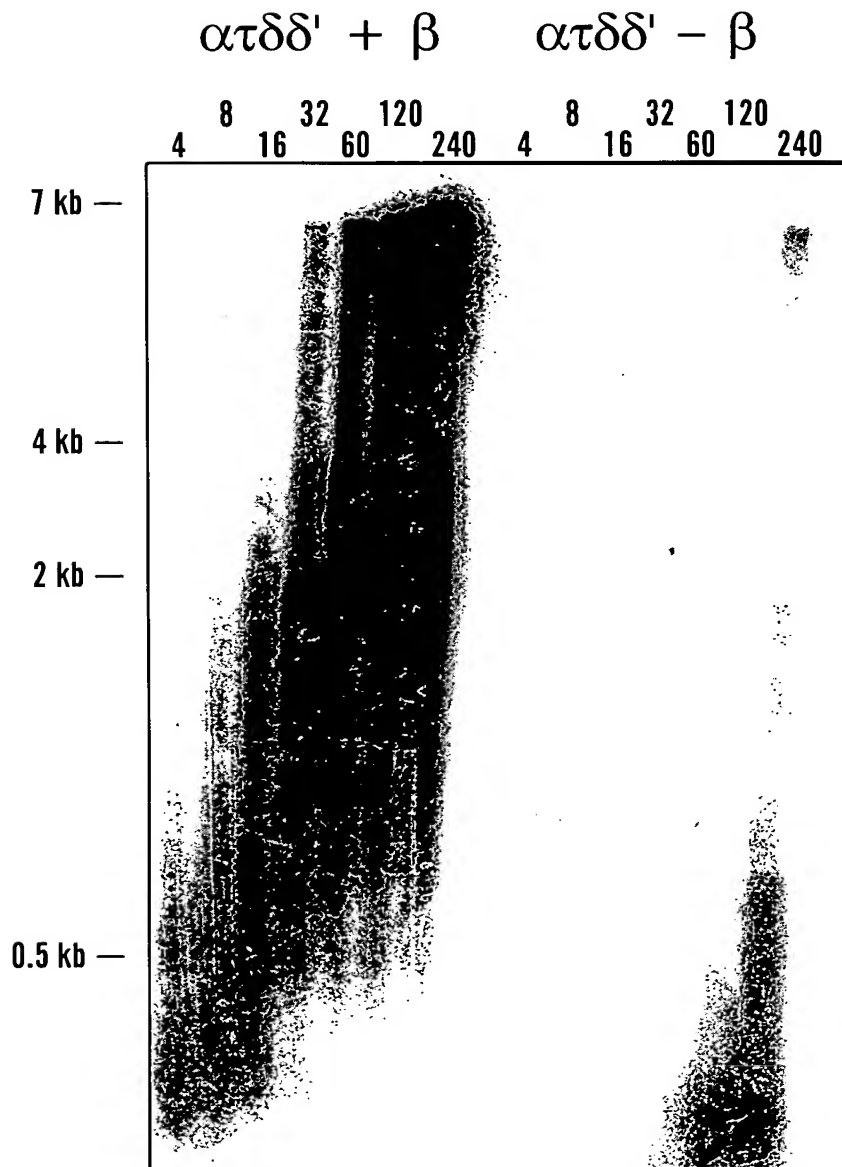


FIG. 30

REPLACEMENT SHEET

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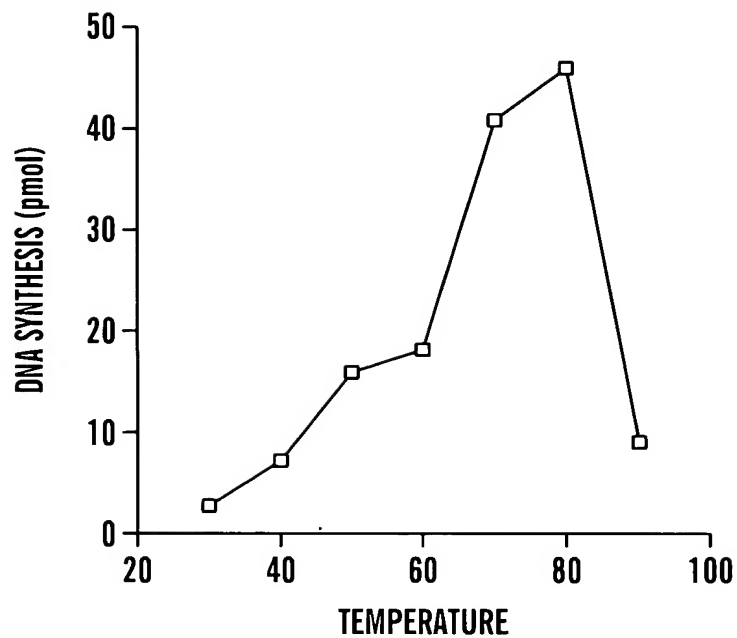


FIG. 31

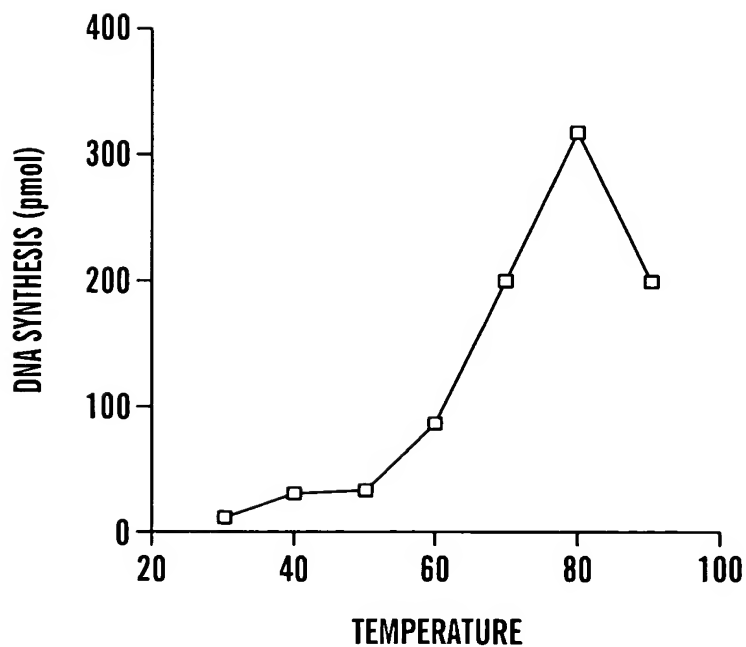


FIG. 32

REPLACEMENT SHEET

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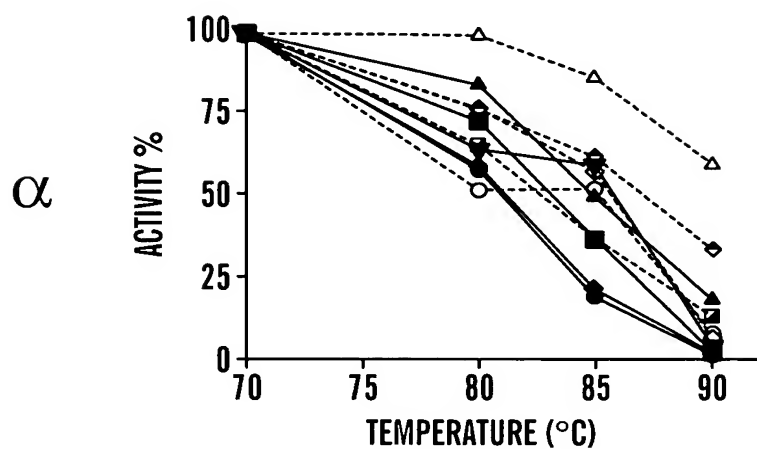


FIG. 33A

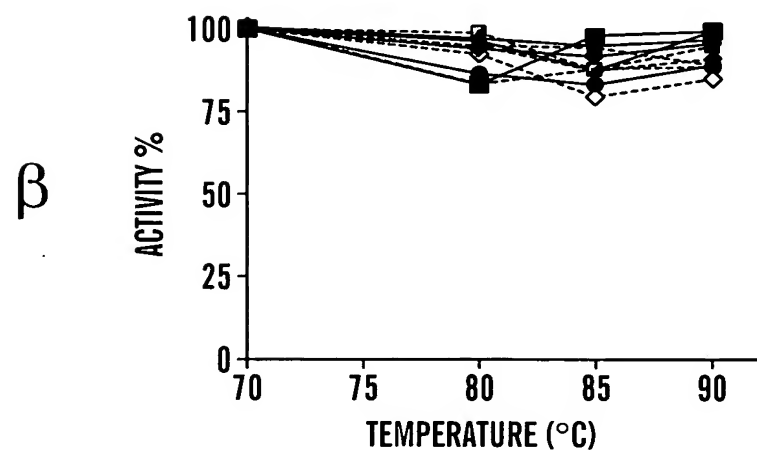


FIG. 33B

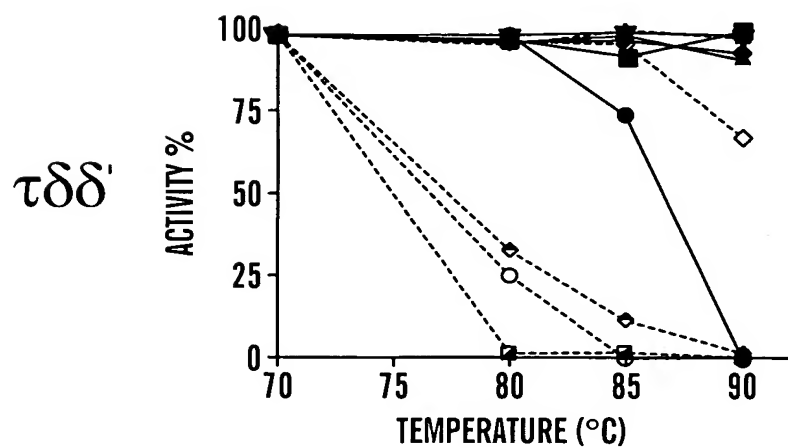


FIG. 33C

REPLACEMENT
SHEET

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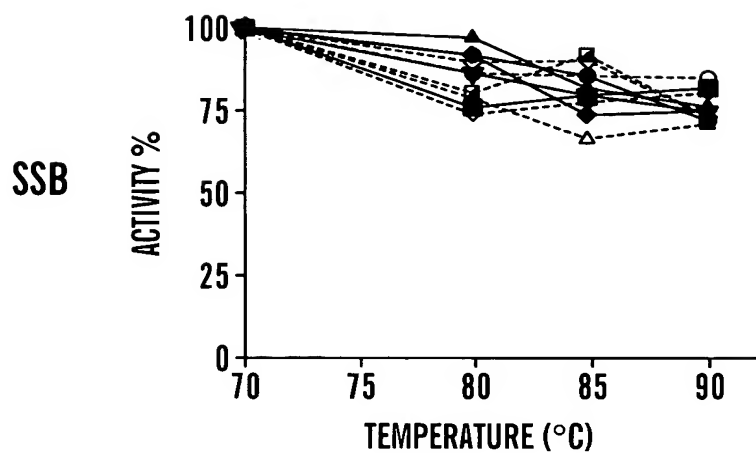


FIG. 33D

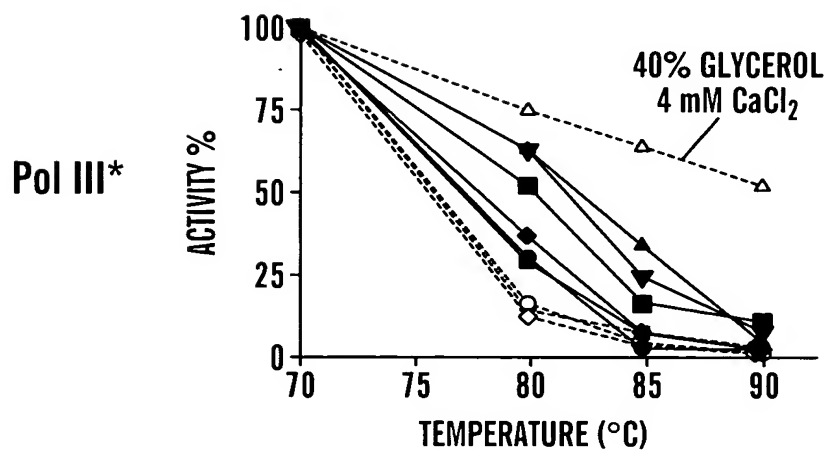


FIG. 33E

REPLACEMENT SHEET

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ATGAGTAAGGATTTTCGTCCACCTTCACCTGCACACCCAGTTCTCACTCCT	100
GGACGGGGCTATAAAGATAGACGAGCTCGTGAAAAAGGCAAAGGAGTATG	
GATACAAAGCTGTTCGGAATGTCAGACCACGGAAACCTCTTCGGTTCGTAT	200
AAATTCTACAAAGCCCTGAAGGCGGAAGGAATTAAGCCCATAATCGGCAT	
GGAAGCCTACTTTTACCACGGGTTTCGAGGTTTGACAGAAAGACTAAAACGA	300
GCGAGGACAACATAACCGACAAGTACAACCACCACCTCATACTTATAGCA	
AAGGACGAAAAGGTCTAAAGAACTTAATGAAGCTCTCAACCCCTCGCCTAC	400
AAAGAAGGTTTTTACTACAAACCCAGAATTGATTACGAACTCCTTGAAAA	
GTACGGGGAGGGCCTAATAGCCCTTACCGCATGCCTGAAAGGTGTTCCCA	500
CCTACTACGCTTCTATAAACGAAGTGAAAAAGGCGGAGGAATGGGTAAAG	
AAGTTCAAGGATATATTTCGGAGATGACCTTTATTTAGAACTTCAAGCGAA	600
CAACATTCAGAACAGGAAGTGGCAAACAGGAACCTTAATAGAGATAGCCA	
AAAAGTACGATGTGAAACTCATAGCGACGCAGGACGCCCACTACCTCAAT	700
CCCGAAGACAGGTACGCCACACGGTTCTTATGGCACTTCAAATGAAAAA	
GACCATTCACGAACTGAGTTCGGGAAACTTCAAGTGTTCAAACGAAGACC	800
TTCACTTTGTCTCCACCCGAGTACATGTGGAAAAAGTTTGAAGGTAAAGTTC	
GAAGGCTGGGAAAAGGCACTCCTGAACACTCTCGAGGTAATGGAAAAGAC	900
AGCGGACAGCTTTTGAGATATTTGAAAACCTCCACCTACCTCCTTCCCAAGT	
ACGACGTTCCGCCCGACAAAACCCCTTGAGGAATACCTCAGAGAACTCGCG	1000
TACAAAGGTTTAAGACAGAGGATAGAAAGGGGACAAGCTAAGGATACTAA	
AGAGTACTGGGAGAGGCTCGAGTACGAACTGGAAGTTATAAACAAAATGG	1100
GCTTTGCGGGATACTTCTTGATAGTTTCAGGACTTCATAAACTGGGCTAAG	
AAAAACGACATACCTGTTGGACCCGGAAGGGGAAGTGCTGGAGGTTCCCT	1200
CGTCGCATACGCCATCGGAATAACGGACGTTGACCCTATAAAGCACGGAT	
TCCTTTTTTGAGAGGTTCTTAAACCCCGAAAGGGTTTCCATGCCGGATATA	1300
GACGTGGATTTCTGTTCAGGACAACAGGGAAAAGGTCATAGAGTACGTAAG	
GAACAAGTACGGACACGACAACGTAGCTCAGATAATCACCTACAACGTAA	1400
TGAAGGCGAAGCAAACACTGAGAGACGTCGCAAGGGCCATGGGACTCCCC	
TACTCCACCGCGGACAACTCGCAAAACTCATTCCTCAGGGGGACGTTCA	1500
GGGAACGTGGCTCAGTCTGGAAGAGATGTACAAAACGCCTGTGGAGGAAC	
TCCTTCAGAAGTACGGAGAACACAGAACGGACATAGAGGACAACGTAAAG	1600
AAGTTCAGACAGATATGCGAAGAAAGTCCGGAGATAAAACAGCTCGTTGA	
GACGGCCCTGAAGCTTGAAGGTCTCACGAGACACACCTCCCTCCACGCCG	1700
CGGGAGTGTTATAGCACCAAAGCCCTTGAGCGAGCTCGTTCCCTCTAC	
TACGATAAAGAGGGCGAAGTCGCAACCCAGTACGACATGGTTTCAGCTCGA	1800
AGAACTCGGTCTCCTGAAGATGGACTTCCTCGGACTCAAACCCCTCACAG	
AACTGAACTCATGAAAGAACTCATAAAGGAAAGACACGGAGTGGATATA	1900
AACTTCCTTGAACCTTCCCTTGACGACCCGAAAGTTTACAACTCCTTCA	
GGAAGGAAAAACCACGGGAGTGTTCCAGCTCGAAAGCAGGGGAATGAAAG	2000
AACTCCTGAAGAACTAAAGCCCGACAGCTTTGACGACATCGTTGCGGTC	
CTCGCACTCTACAGACCCGGACCTCTAAAGAGCGGACTCGTTGACACATA	2100
CATTAAGAGAAAGCACGGAAAAGAACCCGTTGAGTACCCCTTCCCGGAGC	
TTGAACCCGTCCTTAAGGAAACCTACGGAGTAATCGTTTATCAGGAACAG	2200
GTGATGAAGATGTCTCAGATACTTTCCGGCTTTACTCCCGGAGAGGCGGA	
TACCCTCAGAAAGGCGATAGGTAAGAAGAAAGCGGATTTAATGGCTCAGA	2300
TGAAAGACAAGTTCATACAGGGAGCGGTGGAAAGGGGATACCCTGAAGAA	
AAGATAAGGAAGCTCTGGGAAGACATAGAGAAGTTTCGCTTCCTACTCCTT	2400
CAACAAGTCTCACTCGGTAGCTTACGGGTACATCTCCTACTGGACCGCCT	

FIG. 34A

REPLACEMENT SHEET

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ACGTTAAAGCCCCTATCCCGCGGAGTTCTTCGCGGTAAAACCTCACAAC	
GAAAAGAACGACAACAAGTTCCTCAACCTCATAAAAGACGCTAACTCTT	2500
CGGATTTGAGATACTTCCCCCGACATAAACAAGAGTGATGTAGGATTTA	
CGATAGAAGGTGAAAACAGGATAAGGTTTCGGGCTTGCGAGGATAAAGGGA	2600
GTGGGAGAGGAACTGCTAAGATAATCGTTGAAGCTAGAAAGAAGTATAA	
GCAGTTCAAAGGGCTTGCGGACTTCATAAACAAAACCAAGAACAGGAAGA	2700
TAAACAAGAAAGTCGTGGAAGCACTCGTAAAGGCAGGGGCTTTTGACTTT	
ACTAAGAAAAAGAGGAAAGAACTACTCGCTAAAGTGGCAAACCTCTGAAAA	2800
AGCATTAATGGCTACACAAAACCTCCCTTTTCGGTGCACCGAAAGAAGAAG	
TGGAAGAACTCGACCCCTTAAAGCTTGAAAAGGAAGTTCTCGGTTTTTAC	2900
ATTCAGGGCACCCCCCTTGACAACCTACGAAAAGCTCCTCAAGAACCGCTA	
CACACCCATTGAAGATTTAGAAGAGTGGGACAAGGAAAGCGAAGCGGTGC	3000
TTACAGGAGTTATCACGGAACCTCAAAGTAAAAAAGACGAAAAACGGAGAT	
TACATGGCGGTCTTCAACCTCGTTGACAAGACGGGACTAATAGAGTGTGT	3100
CGTCTTCCCGGGAGTTTACGAAGAGGCAAAGGAACTGATAGAAGAGGACA	
GAGTAGTGGTAGTCAAAGGTTTTCTGGACGAGGACCTTGAAACGGAAAAAT	3200
GTCAAGTTCGTGGTGAAAGAGGTTTTCTCCCTGAGGAGTTCGCAAAGGA	
GATGAGGAATACCCTTTATATATTCTTAAAAAGAGAGCAAGCCCTAAACG	3300
GCGTTGCCGAAAAACTAAAGGGAATTATTGAAAACAACAGGACGGAGGAC	
GGATACAACCTGGTTCTCACGGTTGATCTGGGAGACTACTTCGTTGATTT	3400
AGCACTCCCACAAGATATGAACTAAAGGCTGACAGAAAGGTTGTAGAGG	
AGATAGAAAAACTGGGAGTGAAGGTCATAATTTAGTAAATAACCCTTACT	3500
TCCGAGTAGTCCCC	

FIG. 34B

REPLACEMENT SHEET

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MSKDFVHLHLHTQFSLLDGAIKIDELVKKAKEYGYKAVGMSDHGNLFGSY	100
KFYKALKAEIGIKPIIGMEAYFTTGSRFDRKTKTSEDNITDKYNHHLILIA	
KDDKGLKNLMKLSTLAYKEGFYYPKPRIDYELLEKEYGEGLIALTACLKGVP	200
TYYASINEVKKAEWVKKFKDIFGDDLYLELQANNIPEQEVANRNLIIEIA	
KKYDVKLIATQDAHYLNPEDRYAHTVLMALQMKKTIHELSSGNFKCSNED	300
LHFAPPEYMWKKFEGKFEGWEKALLNTLEVMEKTADSFEIFENSTYLLPK	
YDVPPDKTLEEYLRELAYKGLRQRIERGQAKDTKEYWERLEYELEVINKM	400
GFAGYFLIVQDFINWAKKNDIPVGPGRGSAGGSLVAYAIGITDVPDIKHG	
FLFERFLNPERVSMPCIDVDFCQDNREKVIEYVRNKYGHNDVAQIITYNV	500
MKAKQTLRDVARAMGLPYSTADKLAKLIPQGDVQGTWLSLEEMYKTPVEE	
LLQKYGEHRTDIEDNVKKFRQICEESPEIKQLVETALKLEGLTRHTSLHA	600
AGVVIAPKPLSELVPLYDYDKEGEVATQYDMVQLEELGLLKMDFLGLKTLT	
ELKLMKELIKERHGVDFINLELPLDDPKVYKLLQEGKTTGVFQLESRGMK	700
ELLKKLKPDSFDDIVAVLALYRPGPLKSGLVDTYIKRKHGKEPVEYPFPE	
LEPVLKETYGIVIVYQEQVMKMSQILSGFTPGADTLRKAIGKKKADLMAQ	800
MKDKFIQGAVERGYPEEKIRKLWEDIEKFASYSFNKSHSVAYGYISYWTA	
YVKAHYPAEFFAVKLTTEKNDNKFLNLIKDAKLFGFEILPPDINKSDVGF	900
TIEGENRIRFGLARIKGVGEETAKIIVEARKKYKQFKGLADFINKTKNRK	
INKKVVEALVKAGAFDFTKKKRKELLAKVANSEKALMATQNSLFGAPKEE	1000
VEELDPLKLEKEVLGFYISGHPLDNYEKLKKNRYTPIEDLEEWKKESEAV	
LTGVITELKVKKTKNGDYMAVFNLVDKTGLIECVVFPGVYEEAKELIEED	1100
RVVVVKGFLDEDLETENVKFVVEVFSPEEFAKEMRNTLYIFLKREQALN	
GVAEKLKGIIEENNRTEDGYNLVLTVDLGDYFVDLALPQDMKLKADRKVVE	1161
EIEKLGVKVII	

FIG. 35

REPLACEMENT SHEET

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ATGAACTACGTTCCCTTCGCGAGAAAGTACAGACCGAAATTCTTCAGGGA	
AGTAATAGGACAGGAAGCTCCCGTAAGGATACTCAAAAACGCTATAAAAA	100
ACGACAGAGTGGCTCACGCCTACCTCTTTGCCGGACCGAGGGGGGTTGGG	
AAGACGACTATTGCAAGAATTCTCGCAAAAGCTTTGAACTGTAAAAATCC	200
CTCCAAAGGTGAGCCCTGCGGTGAGTGCGAAAACCTGCAGGGAGATAGACA	
GGGGTGTGTTCCCTGACTTAATTGAAATGGATGCCGCCTCAAACAGGGGT	300
ATAGACGACGTAAGGGCATTAAGAAGCGGTCAATTACAAACCTATAAA	
AGGAAAGTACAAGGTTTACATAATAGACGAAGCTCACATGCTCACGAAAG	400
AAGCTTTCAACGCTCTCTTAAAAACCCTCGAAGAGCCCCCTCCCAGAACT	
GTTTTCGTCCCTTGTACCACGGAGTACGACAAAATTCTTCCCACGATACT	500
CTCAAGGTGTCAGAGGATAATCTTCTCAAAGGTAAAGAAAGGAAAAAGTAA	
TAGAGTATCTAAAAAAGATATGTGAAAAGGAAGGGATTGAGTGCGAAGAG	600
GGAGCCCTTGAGGTTCTGGCTCATGCCTCTGAAGGGTGATGAGGGATGC	
AGCCTCTCTCCTGGACCAGGCGAGCGTTTACGGGGAAGGCAGGGTAACAA	700
AAGAAGTAGTGGAGAACTTCCTCGGAATTCTCAGTCAGGAAAGCGTTAGG	
AGTTTTCTGAAATTGCTTCTGAACTCAGAAGTGGACGAAGCTATAAAGTT	800
CCTCAGAGAACTCTCAGAAAAGGGCTACAACCTGACCAAGTTTTTGGGAGA	
TGTTAGAAGAGGAAGTGAGAAACGCAATTTTAGTAAAGAGCCTGAAAAAT	900
CCCGAAAGCGTGGTTCAGAACTGGCAGGATTACGAAGACTTCAAAGACTA	
CCCTCTGGAAGCCCTCCTCTACGTTGAGAACCTGATAAACAGGGGTAAAG	1000
TTGAAGCGAGAACGAGAGAACCCTTAAGAGCCTTTGAACTCGCGGTAATA	
AAGAGCCTTATAGTCAAAGACATAATTCCCGTATCCCAGCTCGGAAGTGT	1100
GGTAAAGGAAACCAAAAAGGAAGAAAAGAAAGTTGAAGTAAAAGAAGAGC	
CAAAAGTAAAAGAAGAAAAACCAAAGGAGCAGGAAGAGGACAGGTTCCAG	1200
AAAGTTTTTAAACGCTGTGGACGGCAAAATCCTTAAAAGAATACTTGAAGG	
GGCAAAAAGGGAAGAAAGAGACGGAAAAATCGTCCTAAAGATAGAAGCCT	1300
CTTATCTGAGAACCATGAAAAAGGAATTTGACTCACTAAAGGAGACTTTT	
CCTTTTTTTAGAGTTTGAACCCGTGGAGGATAAAAAAAACCTCAGAAGTC	1400
CAGCGGGACGAGGCTGTTTTAAAGGTAAAGGAGCTCTTCAATGCAAAAAT	
ACTCAAAGTACGAAGTAAAAGCTAAGGTACATAAAGGTGAGAATGCCCGTG	1500
GAAGAGATAGGGCTGTTTTAACGCACTAATAGACGGCTTGCCCAGGTACGC	
ACTCACGAGGACGAAGGAAAAGGGAAAGGGAGAAGTTTTTCGTTTTTAGCGA	1600
CTCCTTATAAAGTCAAGGAATTGATGGAAGCTATGGAGGGTATGAAAAAA	
CACATAAAGGATTTAGAAATCCTCGGAGAGACGGATGAGGATTTAACTTT	1700
TTAAAGTATGGGTGTATCTGAGCAAAGGTTTAAAGCTAAAAACAAACCTGA	
AACCCGCAGGGGACCAGCCGAAAGCCATAAAAAAACTCCTTGAAAACCTA	1800
AGGAAAGGCGTAAAAGAACAACACTTCTCGGAGTCACGGGAAGCGGAAA	
GACTTTTACTCTAGCAAACGTAATAGCGAAGTACAACAAACCAACTCTTG	1900
TGGTAGTTCACAACAAAATTCTCGCGGCACAGCTATACAGGGAGTTTAAA	
GAACTATTCCCTGAAAACGCTGTAGAGTACTTTGTCTCTTACTACGACTA	2000
TTACCAACCTGAAGCCTACATTCCCGAAAAAGATTTATACATAGAAAAGG	
ACGCGAGTATAAACGAAAGCTGGAACGTTTCAGACACTCCGCCACGATAT	2100
CCGTTCTAGAAAGGAGGGACGTTATAGTAGTTGCTTCAGTTTCTTGCATA	
TACGGACTCGGGAAACCTGAGCACTACGAAAACCTGAGGATAAAACTCCA	2200
AAGGGGAATAAGACTGAACTTGAGTAAGCTCCTGAGGAAACTCGTTGAGC	
TAGGATATCAGAGAAATGACTTTGCCATAAAGAGGGCTACCTTCTCGGTT	2300
AGGGGAGACGTGGTTGAGATAGTCCCTTCTCACACGGAAGATTACCTCGT	
GAGGGTAGAGTTCTGGGACGACGAAGTTGAAAGAATAGTCCTCATGGACG	2400
CTCTGAAC	

FIG. 36

REPLACEMENT SHEET

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MNYVPFARKYRPKFFREVIGQEAPVRILKNAIKNDRVAHAYLFAGPRGVG	
KTTIARILAKALNCKNPSKGEPGECENCREIDRGVFPDLIEMDAASNRG	100
IDDVRLKEAVNYKPIKGKYKVYIIDEAHMLTKEAFNALLKTLEPPPRRT	
VFVLCCTTEYDKILPTILSRCQRIIFSKEVRKEKVIEYLKKICEKEGIECEE	200
GALEVLAHASEGCMRDAASLLDQASVYGEGRVTKEVVENFLGILSQESVR	
SFLKLLLNSEVDEAIKFLRELSEKGYNLTKFWEMLEEEVRNAILVKSLKN	300
PESVVQNWQDYEDFKDYPLEALLYVENLINRGKVEARTREPLRAFELAVI	
KSLIVKDIIPVSQLGSVVKETKKEEKKVEVKEEPKVKEEKPKEQEEDRFQ	400
KVLNAVDGKILKRILEGAKREERDGKIVLKIEASYLRTMKKEFDSLKETF	
PFLEFEPVEDKKKPQKSSGTRLF	473

FIG. 37

REPLACEMENT SHEET

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ATGCGCGTTAAGGTGGACAGGGAGGAGCTTGAAGAGGTTCTTAAAAAAGC	
AAGAGAAAGCACGGAAAAAAGCCGCACTCCCGATACTCGCGAACTTCT	100
TACTCTCCGCAAAAGAGGAAAACTTAATCGTAAGGGCAACGGACTTGGAA	
AACTACCTTGTAAGTCTCCGTAAAGGGGGAGGTTGAAGAGGAAGGAGAGGT	200
TTGCGTCCACTCTCAAAAACCTCTACGATATAGTCAAGAACTTAAATTCCG	
CTTACGTTTACCTTCATACGGAAGGTGAAAACTCGTCATAACGGGAGGA	300
AAGAGTACGTACAACTTCCGACAGCTCCCGCGGAGGACTTTCCCGAATT	
TCCAGAAATCGTAGAAGGAGGAGAAACACTTTTCGGGAAACCTTCTCGTTA	400
ACGGAATAGAAAAGGTAGAGTACGCCATAGCGAAGGAAGAAGCGAACATA	
GCCCTTCAGGGAATGTATCTGAGAGGATACGAGGACAGAATTCACCTTGT	500
GTTTCGGACGGTCACAGGCTTGCACCTTTATGAACCTCTACGTAAACATTGA	
AAAGAGTGAAGACGAGTCTTTTGCTTACTTCTCCACTCCCGAGTGGAAAC	600
TCGCCGTTAGCTCCTGGAAGGAGAATTCCCGGACTACATGAGTGTATCC	
CTGAGGAGTTTTTCGGCGGAAGTCTTGTTTGAGACAGAGGAAGTCTTAAAG	700
GTTTTTAAAGAGGTTGAAGGCTTTAAGCGAAGGAAAAGTTTTTCCCGTGAA	
GATTACCTTAAGCGAAAACCTTGCCATCTTTGAGTTCGCGGATCCGGAGT	800
TCGGAGAAGCGAGAGAGGAAATTGAAGTGGAGTACACGGGAGAGCCCTTT	
GAGATAGGATTCAACGGAAATACCTTATGGAGGCGCTTGACGCCTACGAC	900
AGCGAAAGAGTGTGGTTCAAGTTCACAACCCCCGACACGGCCACTTTATT	
GGAGGCTGAAGATTACGAAAAGGAACCTTACAAGTGCATAATAATGCCGA	1000
TGAGGGTGTAGCCATGAAAAAGCTTTAATCTTTTTATTGAGCTTGAGCC	
TTTTAATTCTGCGTTTAGCGAAGCCAAACCCAAGTCTTC	1090

FIG. 38

MRVKVDREELEEV LKKARESTEKKAALPILANFLLSAKEENLIVRATDLE	
NYLVVSVKGEVEEEGEVCVHSQKLYDIVKNLNSAYVYLHTEGEKLVITGG	100
KSTYKLP TAPAE DFP EFPEIVEGGETLSGNLLVNGIEKVEYAI AKEEANI	
ALQGM YLRGYEDRIHFVGS DGHRLALYEPLGEFSKELLI PRKSLKVLKKL	200
ITGIEDVNIEKSEDES FAYFSTPEWKLAVRLLEGEFPDYMSV IPEEFSAE	
VLFE TEEVLKVLKRLKALSEGKVPVKITLSENLAIFE FADPEFGEAREE	300
IEVEYTGEPFEIGFNGKYLMEALDAYDSERVWFKFTTPDTATLLEAEDYE	
KEPYKCIIMPMRV	363

FIG. 39

REPLACEMENT SHEET

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GTGGAAACCACAATATTCCAGTTCCAGAAAACCTTTTTTCACAAAACCTCC	
GAAGGAGAGGGTCTTTCGTCCCTTCATGGAGAAGAGCAGTATCTCATAAGAA	100
CCTTTTTGTCTAAGCTGAAGGAAAAGTACGGGGAGAATTACACGGTTCTG	
TGGGGGGATGAGATAAGCGAGGAGGAATTCTACACTGCCCTTTCGAGAC	200
CAGTATATTTCGGCGGTTCAAAGGAAAAGCGGTGGTCATTTACAACCTTCG	
GGGATTTCTCTGAAGAAGCTCGGAAGGAAGAAAAGGAAAAGAAAGGCTT	300
ATAAAAGTCCTCAGAAACGTAAAGAGTAACTACGTATTTATAGTGTACGA	
TGCGAAACTCCAGAAACAGGAACCTTCTTCGGAACCTCTGAAATCCGTAG	400
CGTCTTTCGGCGGTATAGTGGTAGCAAACAGGCTGAGCAAGGAGAGGATA	
AAACAGCTCGTCCTTAAGAAGTTCAAAGAAAAGGGATAAACGTAGAAAA	500
CGATGCCCTTGAATACCTTCTCCAGCTCACGGGTACAACCTTGATGGAGC	
TCAAACCTTGAGGTTGAAAAACTGATAGATTACGCAAGTGAAAAGAAAATT	600
TTAACACTCGATGAGGTAAAGAGAGTAGCCTTCTCAGTCTCAGAAAACGT	
AAACGTATTTGAGTTCGTTGATTTACTCCTCTTAAAGATTACGAAAAGG	700
CTCTTAAAGTTTTTGGAAGTCCCTCATTTCCTTCGGAATACACCCCTCCAG	
ATTATGAAAATCCTGTCCTCCTATGCTCTAAAACCTTTACACCCTCAAGAG	800
GCTTGAAGAGAAGGGAGAGGACCTGAATAAGGCGATGGAAAGCGTGGGAA	
TAAAGAACAACCTTCTCAAGATGAAGTTCAAATCTTACTTAAAGGCAAAC	900
TCTAAAGAGGACTTGAAGAACCTAATCCTCTCCCTCCAGAGGATAGACGC	
TTTTTCTAAACCTTACTTTTCAGGACACAGTGCAGTTGCTGGGGATTTCTT	1000
GACCTCAAGACTGGAGAGGGAAGTTGTGAAAAATACTTCTCATGGTGAT	
AATCTTTTTTATGAAGTTTGCGGTTTGCGTTTTTCCCGGTTCT	1093

FIG. 40

VETTIFQFQKTFFTKPPKERVFVLHGEEQYLIRTFLSKLKEKYGENYTVL	
WGDEISEEEFYTALSETSI FGGSKEKAVVIYNFGDFLKKLGRKKKEKERL	100
IKVLRNVKSNYVFIVYDAKLQKQELSSSEPLKSVASF GGIVVANRLSKERI	
KQLVLKKFKEKGINVENDALEYLLQLTGYNLMELKLEVEKLIDYASEKKI	200
LTLDEVKRVAFSVSENVNVFEFVDLLLLKDYEKALKVLDLSISFGIHP LQ	
IMKILSSYALKLYTLKRLEEKGEDLNKAMESVG IKNNFLKMKFKSYLKAN	300
SKEDLKNLILSLQRIDAFSKLYFQDTVQLLRDFLT SRLEREVVKNTSHGG	

FIG. 41

REPLACEMENT SHEET

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ATGGAAAAAGTTTTTTTGGAAAACTCCAGAAAACCTTGCACATACCCGG	
AGGACTCCTTTTTTTACGGCAAAGAAGGAAGCGGAAAGACGAAAACAGCTT	100
TTGAATTTGCAAAAGGTATTTTATGTAAGGAAAACGTACCTGGGGATGCG	
GAAGTTGTCCCTCCTGCAAACACGTAAACGAGCTGGAGGAAGCCTTCTTT	200
AAAGGAGAAATAGAAGACTTTAAAGTTTATAAGACAAGGACGGTAAAAAG	
CACTTCGTTTACCTTATGGGCGAACATCCCGACTTTGTGGTAATAATCCC	300
GAGCGGACATTACATAAAAGATAGAACAGATAAGGGAAGTTAAGAACTTTG	
CCTATGTGAAGCCCCGCACTAAGCAGGAGAAAAGTAATTATAATAGACGAC	400
GCCACGCGATGACCTCTCAGGCGGCAAACGCTCTTTTAAAGGTATTGGA	
AGAGCCACCTGCGGACACCACCTTTATCTTGACCACGAACAGGCGTTCTG	500
CAATCCTGCCGACTATCCTCTCCAGAACTTTTCAAGTGGAGTTCAAGGGC	
TTTTTCAGTAAAAGAGGTATGGAATAGCGAAAGTAGACGAGGAAATAGC	600
GAAACTCTCTGGAGGCAGTCTAAAAAGGGCTATCTTACTAAAGGAAAACA	
AAGATATCCTAAACAAAGTAAAGGAATTCTTGGAACGAGCCGTTAAAA	700
GTTTACAAGCTTGCAAGTGAATTCGAAAAGTGGGAACCTGAAAAGCAAAA	
ACTCTTCCTTGAAATTATGGAAGAATTGGTATCTCAAAAATTGACCGAAG	800
AGAAAAAAGACAATTACACCTACCTTCTTGATACGATCAGACTCTTTAA	
GACGGAATCGCAAGGGGTGTAAACGAACCTCTGTGGCTGTTTACGTTAGC	900
CGTTCAGGCGGATTAATAAACCGTTATTGATTCCGTAACATTTAAACCTT	
AATCTAAATTATGAGAGCCTTTGAAGGAGGTCTGGTATGGAAAATTTGAA	1000
GATTAGATATATAGATACGAGGAAGATAGGAACCGTGAGCGGTGTAAAAG	
T	1051

FIG. 42

MEKVFLEKLQKTLHIPGGLLFYKGESGKTKTAFEFAGILCKENVPWGC	
GSCPSCKHVNELEEAFKGEIEDFKVYKDKDGKKHFVYLMGEHPDFVVI	100
PSGHYIKIEQIREVKNFAYVKPALSRRKVIIIDDAHAMTSQAANALLKVL	
EEPPADTTFILTTNRRSAILPTILSRTFQVEFKGFSVKEVMEIAKVDEEI	200
AKLSGGSLKRAILLKENKDILNKVKEFLENEPLKVYKLASEFEKWEPEKQ	
KLFLEIMEELVSQKLTEEKKDNYTYLLDTIRLFKDGLARGVNEPLWLFTL	300
AVQAD	

FIG. 43

REPLACEMENT SHEET

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ATGAACTTCCTGAAAAAGTTCCTTTTACTGAGAAAAGCTCAAAAGTCTCC	
TTACTTCGAAGAGTTCTACGAAGAAATCGATTTGAACCAGAAGGTGAAAG	100
ATGCAAGGTTTGTAGTTTGTGACTGCGAAGCCACAGAAGTTCGACGTAAAG	
AAGGCAAACTCCTTTCAATAGGTGCGGTTGAGGTTAAAAACCTGGAAAT	200
AGACCTCTCTAAATCTTTTTTACGAGATACTCAAAAGTGACGAGATAAAGG	
CGGCGGAGATACATGGAATAACCAGGGAAGACGTTGAAAAGTACGGAAAG	300
GAACCAAAGGAAGTAATATACGACTTTCTGAAGTACATAAAGGGAAGCGT	
TCTCGTTGGCTACTACGTGAAGTTTGACGTCTCACTCGTTGAGAAGTACT	400
CCATAAAGTACTTCCAGTATCCAATCATCAACTACAAGTTAGACCTGTTT	
AGTTTTCGTGAAGAGAGAGTACCAGAGTGGCAGGAGTCTTGACGACCTTAT	500
GAAGGAACTCGGTGTAGAAATAAGGGCAAGGCACAACGCCCTTGAAGATG	
CCTACATAACCGCTCTTCTTTTCCTAAAGTACGTTTACCCGAACAGGGAG	600
TACAGACTAAAGGATCTCCCGATTTTCCTT	

FIG. 44

MNFLKKFLLLRKAQKSPYFEEFYEEIDLNQKVKDARFVVFDCEATELDVK	
KAKLLSIGAVEVKNLEIDLKSKSFYEILKSDEIKAAEIHGITREDVEKYGK	100
EPKEVIYDFLKYIKGSVLVGYYVKFDVSLVEKYSIKYFQYPIINYKLDLF	
SFVKREYQSGRSLDDLKELGVEIRARHNALEDAYITALLFLKYVYPNRE	200
YRLKDLPIFL	

FIG. 45

REPLACEMENT SHEET

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ATGCTCAATAAGGTTTTTATAATAGGAAGACTTACGGGTGACCCCGTTAT	
AACTTATCTACCGAGCGGAACGCCCGTAGTAGAGTTTACTCTGGCTTACA	100
ACAGAAGGTATAAAAACCAGAACGGTGAATTTTCAGGAGGAAAGTCACTTC	
TTTGACGTAAAGGCGTACGGAAAAATGGCTGAAGACTGGGCTACACGCTT	200
CTCGAAAGGATACCTCGTACTCGTAGAGGGAAGACTCTCCCAGGAAAAGT	
GGGAGAAAGAAGGAAAGAAGTTCTCAAAGGTCAGGATAATAGCGGAAAAC	300
GTAAGATTAATAAACAGGCCGAAAGGTGCTGAACTTCAAGCAGAAGAAGA	
GGAGGAAGTTCCTCCCATTTGAGGAGGAAATTGAAAAACTCGGTAAAGAGG	400
AAGAGAAGCCTTTTACCGATGAAGAGGACGAAATACCTTTTTAATTTTGA	
GGAGGTTAAAGTATGGTAGTGAGAGCTCCTAAGAAGAAAGTTTGTATGTA	500
CTGTGAACAAAAGAGAGAGCCAGATT	

FIG. 46

MLNKVFIIGRLTGDPVITYLPSGTPVVEFTLAYNRRYKNQNGEFQEESHF	
FDVKAYGKMAEDWATRFSGYLVLEGRLSQEKWEKEGKKFSKVRIIAEN	100
VRLINRPKGAEHQAEVEVPPIEEEIEKLGKEEEKPFTDEEDEIPF	

FIG. 47

REPLACEMENT SHEET

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ATGCAATTTGTGGATAAACTTCCCTGTGACGAATCCGCCGAGAGGGCGGT	
TCTTGGCAGTATGCTTGAAGACCCCGAAAACATACCTCTGGTACTTGAAT	100
ACCTTAAAGAAGAAGACTTCTGCATAGACGAGCACAAGCTACTTTTCAGG	
GTTCTTACAAACCTCTGGTCCGAGTACGGCAATAAGCTCGATTTTCGTATT	200
AATAAAGGATCACCTTGAAAAGAAAACTTACTCCAGAAAATACCTATAG	
ACTGGCTCGAAGAACTCTACGAGGAGGCGGTATCCCCTGACACGCTTGAG	300
GAAGTCTGCAAAATAGTAAAACAACGTTCCGCACAGAGGGCGATAATTCA	
ACTCGGTATAGAACTCATTCACAAAGGAAAGGAAAACAAAGACTTTCACA	400
CATTAATCGAGGAAGCCCAGAGCAGGATATTTTCCATAGCGGAAAGTGCT	
ACATCTACGCAGTTTTTACCATGTGAAAGACGTTGCGGAAGAAGTTATAGA	500
ACTCATTTATAAATTCAAAAGCTCTGACAGGCTAGTCACGGGACTCCCAA	
GCGGTTTCACGGAACCTCGATCTAAAGACGACGGGATTCACCCTGGAGAC	600
TTAATAATACTCGCCGCAAGACCCGGTATGGGGAAAACCGCCTTTATGCT	
CTCCATAATCTACAATCTCGCAAAAGACGAGGGAAAACCCTCAGCTGTAT	700
TTTCCTTGGAATGAGCAAGGAACAGCTCGTTATGAGACTCCTCTCTATG	
ATGTCGGAGGTCCCACTTTTCAAGATAAGGTCTGGAAGTATATCGAATGA	800
AGATTTAAAGAAGCTTGAAGCAAGCGCAATAGAACTCGCAAAGTACGACA	
TATACCTCGACGACACACCCGCTCTCACTACAACGGATTTAAGGATAAGG	900
GCAAGAAAGCTCAGAAAGGAAAAGGAAGTTGAGTTCGTGGCGGTGGACTA	
CTTGCAACTTCTGAGACCGCCAGTCCGAAAGAGTTCAAGACAGGAGGAAG	1000
TGGCAGAGGTTTCAAGAACTTAAAAGCCCTTGCAAAGGAACTTCACATT	
CCCGTTATGGCACTTGCGCAGCTCTCCCGTGAGGTGGAAAAGAGGAGTGA	1100
TAAAAGACCCAGCTTGCGGACCTCAGAGAATCCGGACAGATAGAACAGG	
ACGCAGACCTAATCCTTTTCCCTCCACAGACCCGAGTACTACAAGAAAAAG	1200
CCAAATCCCGAAGAGCAGGGTATAGCGGAAGTGATAATAGCCAAGCAAAG	
GCAAGGACCCACGGACATTGTGAAGCTCGCATTTATTAAGGAGTACACTA	1300
AGTTTGCAAACCTAGAAGCCCTTCCTGAACAACCTCCTGAAGAAGAGGAA	
CTTTCCGAAATTATTGAAACACAGGAGGATGAAGGATTCGAAGATATTGA	1400
CTTCTGAAAATTAAGGTTTTATAATTTTATCTTGCTATCCGGGGTAGCT	
CAATCGGCAGAGCGGGTGGCTG	1472

FIG. 48

MQFVDKLPCEDESAERAVLGSMLDPENIPLVLEYLKEEDFCIDEHKLLFR	
VLTNLWSEYGNKLDVFLIKDHLEKKNLLQKIPIDWLEELYEEAVSPDTLE	100
EVCKIVKQRSAQRAIIQLGITSTQFYHVKDVAEEVIELIYKFKSSDRLVT	
GLPSGFTELDLKTTFHFGDLIIILARPFGMGKTAFMLSIIYNLAKDEGKP	200
SAVFSLEMSKEQLVMRLLSMMSEVPLFKIRSGSISNEDLKKLEASAIELA	
KYDIYLDLTPALTTDLRIRARKLRKEKEVEFVAVDYLQLLRPPVRKSSR	300
QEEVAEVSRLKALAKELHIPVMALAQLSREVEKRSDKRPQLADLRESGQ	
IEQDADLILFLHRPEYYKKKPNPEEQGIAEVIIAKQRQGPTDIVKLAFIK	400
EYTKFANLEALPEQPPEEEELSEIIETQEDEGFEDIDF	

FIG. 49

REPLACEMENT SHEET

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ATGTCCTCGGACATAGACGAACTTAGACGGGAAATAGATATAGTAGACGT	
CATTTCCGAATACTTAACTTAGAGAAGGTAGGTTCCAATTACAGAACGA	100
ACTGTCCCTTTACCCCTGACGATACACCCTCCTTTTACGTGTCTCCAAGT	
AAACAAATATTCAAGTGTTTCGGTTGCGGGGTAGGGGGAGACGCGATAAA	200
GTTCGTTTCCCTTTACGAGGACATCTCCTATTTTGAAGCCGCCCTTGAAC	
TCGCAAAACGCTACGGAAAGAAATTAGACCCTTGAAAAGATATCAAAAGAC	300
GAAAAGGTATACGTGGCTCTTGACAGGGTTTGTGATTTCTACAGGGAAAG	
CCTTCTCAAAAACAGAGAGGCAAGTGAGTACGTAAAGAGTAGGGGAATAG	400
ACCCTAAAGTAGCGAGGAAGTTTGATCTTGGGTACGCACCTTCCAGTGAA	
GCACTCGTAAAAGTCTTAAAGAGAACGATCTTTTAGAGGCTTACCTTGA	500
AACTAAAAACCTCCTTTCTCCTACGAAGGGTGTTTACAGGGATCTCTTTC	
TTCGGCGTGTCGTGATCCCGATAAAGGATCCGAGGGGAAGAGTTATAGGT	600
TTCGGTGGAAGGAGGATAGTAGAGGACAAATCTCCCAAGTACATAAACTC	
TCCAGACAGCAGGGTATTTAAAAAGGGGGAGAACTTATTCGGTCTTTACG	700
AGGCAAAGGAGTATATAAAGGAAGAAGGATTTGCGATACTTGTGGAAGGG	
TACTTTGACCTTTTGAGACTTTTTTCCGAGGGAATAAGGAACGTTGTTGC	800
ACCCCTCGGTACAGCCCTGACCCAAAATCAGGCAAACCTCCTTTCCAAGT	
TCACAAAAAAGGTCTACATCCTTTACGACGGAGATGATGCGGGAAGAAAG	900
GCTATGAAAAGTGCCATTCCCCTACTCCTCAGTGCAGGAGTGGAAGTTTA	
TCCCGTTTACCTCCCCGAAGGATACGATCCCGACGAGTTTATAAAGGAAT	1000
TCGGGAAAGAGGAAATTAAGAAGACTGATAAACAGCTCAGGGGAGCTCTTT	
GAAACGCTCATAAAAACCGCAAGGGAAAACCTTAGAGGAGAAAACGCGTGA	1100
GTTTCAGGTATTATCTGGGCTTTATTTCCGATGGAGTAAGGCGCTTTGCTC	
TGGCTTCGGAGTTTCACACCAAGTACAAAGTTCCTATGGAAATTTTATTA	1200
ATGAAAATTGAAAAAAATTCTCAAGAAAAAGAAATTAACTCTCCTTTAA	
GGAAAAAATCTTCCTGAAAGGACTGATAGAATTAAACCAAAAATAGACC	1300
TTGAAGTCCTGAACTTAAGTCCTGAGTTAAAGGAACTCGCAGTTAACGCC	
TTAAACGGAGAGGAGCATTTACTTCCAAAAGAAGTTCTCGAGTACCAGGT	1400
GGATAACTTGAGAAACTTTTAAACAACATCCTTAGGGATTTACAAAAAT	
CTGGGAAAAAGAGGAAGAAAAGAGGGTTGAAAAATGTAAATACTTAATTA	1500
ACTTTAATAAATTTTATAGAGTTAGGA	

FIG. 50

MSSDIDELRREIDIVDVISEYLNLEKVGSNYRTNCPFHPDDTPSFYVSPS	
KQIFKCFGCGVGDAIKFVSLYEDISYFEAALELAKRYGKKLDLEKISKD	100
EKVYVALDRVCDFYRESLLKNREASEYVKS R GIDPKVARKFDLGYAPSSE	
ALVKVLKENDLLEAYLETKNLLSPTKGVYRDLFLRRVVIPIKDPRGRVIG	200
FGGRRIVEDKSPKYINSPDSRVFKKGENLFGLYEAKYIKEEGFAILVEG	
YFDLLRLFSEGIRNVVAPLGTALTQNQANLLSKFTKKVYILYDGD DAGRK	300
AMKSAIPLLLSAGVEVYPVYLPEGYDPDEFI KEFGKEELRRLINSSGELF	
ETLIK TARENLEEK TREFRYYLGFISDGVRRFALASEFHTKYKVPMEILL	400
MKIEKNSQEKEIKLSFKEKIFLKGLIELKPKIDLEVLNLSPELKELAVNA	
LNGEEHLLPKEVLEYQVDNLEKLFNNILRDLQKSGKKRKKRGLKNVNT	498

FIG. 51

REPLACEMENT SHEET

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ATGCAAGATACCGCTACCTGCAGTATTTGTCAGGGGACGGGATTCGTAAA	
GACCGAAGACAACAAGGTAAGGCTCTGCGAATGCAGGTTCAAGAAAAGGG	100
ATGTAAACAGGGAACTAAACATCCCAAAGAGGTACTGGAACGCCAACTTA	
GACACTTACCACCCCAAGAACGTATCCCAAGAACAGGGCACTTTTGACGAT	200
AAGGGTCTTCGTCCACAACCTTCAATCCCGAGGAAGGGAAAGGGCTTACCT	
TTGTAGGATCTCCTGGAGTCGGCAAACTCACCTTGCGGTTGCAACATTA	300
AAAGCGATTTATGAGAAGAAGGGAATCAGAGGATACTTCTTCGATACGAA	
GGATCTAATATTCAGGTTAAAACACTTAATGGACGAGGGAAAGGATACAA	400
AGTTTTTTAAAACTGTCTTAACTCACCGGTTTTGGTTCTCGACGACCTC	
GGTTCTGAGAGGCTCAGTGACTGGCAGAGGGAACATCTCTTACATAAT	500
CACCTACAGGTATAACAACCTTAAGAGCACGATAATAACCACGAATTACT	
CACTCCAGAGGGAAGAAGAGAGTAGCGTGAGGATAAGTGCGGATCTTGCA	600
AGCAGACTCGGAGAAAACGTAGTTTCAAAAATTTACGAGATGAACGAGTT	
GCTCGTTATAAAGGGTTCCGACCTCAGGAAGTCTAAAAAGCTATCAACCC	700
CATCT	

FIG. 52

MQDTATCSICQGTGFVKTEDNKNVRLCECRFKKRDVNRELNIPKRYWNANL	
DTYHPKNVSQNRALLTIRVFVHNFNP EEGKGLTFVGSPGVGKTHLAVATL	100
KAIYEKKGIRGYFFDTKDLIFRLKHLMD EGKDTKFLKTVLNSPVLVDDL	
GSERLSDWQRELISYIITYRYNNLKSTIITNYSLQREEESSVRISADLA	200
SRLGENVVSKIYEMNELLVIKGS DLRKSKKLSTPS	

FIG. 53

REPLACEMENT SHEET

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ATGAAAAAGATTGAAAATTTGAAGTGAAAAATGTCTCGTTTAAAAGCCT	
GGAAATAGATCCCGATGCAGGTGTGGTTCTCGTTTCCGTGGAAAAATTCT	100
CCGAAGAGATAGAAGACCTTGTGCGTTTACTGGAGAAGAAGACGCGGTTT	
CGAGTCATCGTGAACGGTGTTCAAAAAAGTAACGGGGATCTAAGGGGAAA	200
GATACTTTCCCTTCTCAACGGTAATGTGCCTTACATAAAAGATGTTGTTT	
TCGAAGGAAACAGGCTGATTCTGAAAGTGCTTGGAGATTTTCGCGCGGGAC	300
AGGATCGCCTCCAAACTCAGAAGCACGAAAAAACAGCTCGATGAACTGCT	
GCCTCCCGGAACAGAGATCATGCTGGAGGTTGTGGAGCCTCCGGAAGATC	400
TTTTGAAAAAGGAAGTACCACAACCAGAAAAGAGAGAAGAACCAAAGGGT	
GAAGAATTGAAGATCGAGGATGAAAACACATCTTTGGACAGAAACCCAG	500
AAAGATCGTCTTACCCCCCTCAAAAATCTTTGAGTACAACAAAAGACAT	
CGGTGAAGGGCAAGATCTTCAAAATAGAGAAGATCGAGGGGAAAAGAACG	600
GTCTTCTGATTTACCTGACAGACGGAGAAGATTCTCTGATCTGCAAAGT	
CTTCAACGACGTTGAAAAGGTCTGAAGGGAAAGTATCGGTGGGAGACGTGA	700
TCGTTGCCACAGGAGACCTCCTTCTCGAAAACGGGGAGCCCCACCTTTAC	
GTGAAGGGAATCACAAAAC'TTCCCGAAGCGAAAAGGATGGACAAATCTCC	800
GGTTAAGAGGGTGGAGCTCCACGCCCATACCAAGTTCAGCGATCAGGACG	
CAATAACAGATGTGAACGAATATGTGAAACGAGCCAAGGAATGGGGCTTT	900
CCCGCGATAGCCCTCACGGATCATGGGAACGTTTCAGGCCATACCTTACTT	
CTACGACGCGGCGAAAGAAGCTGGAATAAAGCCCATT'TTCGGTATCGAAG	1000
CGTATCTGGTGAGTGACGTGGAGCCCGTCATAAGGAATCTCTCCGACGAT	
TCGACGTTTGGAGATGCCACGTTCTGTCGTCTCGACTTCGAGACGACGGG	1100
TCTCGACCCGCAGGTGGATGAGATCATCGAGATAGGAGCGGTGAAGATAC	
AGGGTGGCCAGATAGTGGACGAGTACCACACTCTCATAAAGCCTTCCAGG	1200
GAGATCTCAAGAAAAAGTTTCGGAGATCACCGGAATCACTCAAGAGATGCT	
GGAAAAACAAGAGAAGCATCGAGGAAGTTCTGCCGGAGTTCTTCGGTTTTC	1300
TGGAAGATTCCATCATCGTAGCACACAACGCCAACTTCGACTACAGATTT	
CTGAGGCTGTGGATCAAAAAAGTGATGGGATTGGACTGGGAAAGACCCTA	1400
CATAGATACGCTCGCCCTCGCAAAGTCCCTTCTCAAACCTGAGAAGCTACT	
CTCTGGATTCCGTTGTGGAAAAGCTCGGATTGGGTCCCTTCCGGCACCAC	1500
AGGGCCCTGGATGACGCGAGGGTCACCGCTCAGGTTTTCTCAGGTTTCGT	
TGAGATGATGAAGAAGATCGGTATCACGAAGCTTTCAGAAATGGAGAAGT	1600
TGAAGGATACGATAGACTACACCGCGTTGAAACCCCTTCCACTGCACGATC	
CTCGTTCAGAACAAAAAGGGATTGAAAAACCTATACAAACTGGTTTCTGA	1700
TTCTTATATAAAGTACTTCTACGGTGTTCCGAGGATCCTCAAAAGTGAGC	
TCATCGAGAACAGAGAAGGACTGCTCGTGGGTAGCGCGTGTATCTCCGGT	1800
GAGCTCGGACGTGCCGCCCTCGAAGGAGCGAGTGATTTCAGAACTCGAAGA	
GATCGCGAAGTTCTACGACTACATAGAAGTCATGCCGCTCGACGTTATAG	1900
CCGAAGATGAAGAAGACCTAGACAGAGAAAGACTGAAAGAAGTGTACCGA	
AAACTCTACAGAATAGCGAAAAAATTGAACAAGTTCGTTCGTCATGACCGG	2000
TGATGTTTCA'TTTCCTCGATCCCGAAGATGCCAGGGGCAGAGCTGCACTTC	
TGGCACCTCAGGGAAACAGAACTTTCGAGAATCAGCCCGCACTCTACCTC	2100
AGAACGACCGAAGAAATGCTCGAGAAGGCGATAGAGATATTCGAAGATGA	
AGAGATCGCGAGGGGAAGTCGTGATAGAGAATCCCAACAGAATAGCCGATA	2200
TGATCGAGGAAGTGCAGCCGCTCGAGAAAAAACTTCACCCGCCGATCATA	
GAGAACGCCGATGAAATAGTGAGAAACCTCACCATGAAGCGGGCGTACGA	2300
GATCTACGGTGATCCGCTTCCCGAAATCGTCCAGAAGCGTGTGAAAAGG	

FIG. 54A

REPLACEMENT SHEET

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AACTGAACGCCATCATAAATCATGGATACGCCGTTCTCTATCTCATCGCT	2400
CAGGAGCTCGTTCAGAAATCTATGAGCGATGGTTACGTGGTTGGATCCAG	
AGGATCCGTCGGGTCTTCACTCGTGGCCAATCTCCTCGGAATAACAGAGG	2500
TGAATCCCCCTACCACCACATTACAGGTGTCCAGAGTGCAAATACTTTGAA	
GTTGTCTGAAGACGACAGATACGGAGCGGGTTACGACCTTCCCAACAAGAA	2600
CTGTCCAAGATGTGGGGCTCCTCTCAGAAAAGACGGCCACGGCATAACCGT	
TTGAAACGTTTCATGGGGTTCGAGGGTGACAAGGTCCCCGACATAGATCTC	2700
AACTTCTCAGGAGAGTATCAGGAACGTGCTCATCGTTTTTGTGGAAGAACT	
CTTCGGTAAAGACCACGTCTATAGGGCGGGAACCATAAACACCATCGCGG	2800
AAAGAAGTGCGGTGGGTACGTGAGAAGCTACGAAGAGAAAACCGGAAAG	
AAGCTCAGAAAGGCGGAAATGGAAAGACTCGTTTTCCATGATCACGGGAGT	2900
GAAGAGAACGACGGGTCAGCACCCAGGGGGGCTCATGATCATAACGAAAG	
ACAAAGAAGTCTACGATTTCACTCCCATAACAGTATCCAGCCAACGATAGA	3000
AACGCAGGTGTGTTCAACCACGCACTTCGCATACGAGACGATCCATGATGA	
CCTGGTGAAGATAGATGCGCTCGGCCACGATGATCCCCTTTCATCAAGA	3100
TGCTCAAGGACCTCACCGGAATCGATCCCATGACGATTCCCATGGATGAC	
CCCGATACGCTCGCCATATTCAGTTCTGTGAAGCCTCTTGGTGTGGATCC	3200
CGTTGAGCTGGAAAGCGATGTGGGAACGTACGGAATTCCGGAGTTCGGAA	
CCGAGTTTGTGAGGGGAATGCTCGTTGAAACGAGACCAAAGAGTTTCGCC	3300
GAGCTTGTGAGAATCTCAGGACTGTACACGGTACGGACGTCTGGTTGAA	
CAACGCACGTGATTGGATAAACCTCGGCTACGCCAAGCTCTCCGAGGTTA	3400
TCTCGTGTAGGGACGACATCATGAACTTCCTCATACACAAAGGAATGGAA	
CCGTCACTTGCCCTTCAAGATCATGGAAAACGTCAGGAAGGGAAAGGGTAT	3500
CACAGAAGAGATGGAGAGCGAGATGAGAAGGCTGAAGGTTCCAGAATGGT	
TCATCGAATCCTGTAAAAGGATCAAATATCTCTTCCCGAAAGCTCACGCT	3600
GTGGCTTACGTGAGTATGGCCTTCAGAATTGCTTACTTCAAGGTTCACTA	
TCCTCTTCAGTTTTTACGCGGCGTACTTCACGATAAAAGGTGATCAGTTTCG	3700
ATCCGGTTCTCGTACTCAGGGGAAAAGAAGCCATAAAGAGGCGCTTGAGA	
GAACTCAAAGCGATGCCTGCCAAAGACGCCCAGAAGAAAAACGAAGTGAG	3800
TGTTCTGGAGGTTGCCCTGGAAATGATACTGAGAGGTTTTTCCTTCCTAC	
CGCCCGACATCTTCAAATCCGACGCGAAGAAATTTCTGATAGAAGGAAAC	3900
TCGCTGAGAATTCCGTTCAACAAACTTCCAGGACTGGGTGACAGCGTTGC	
CGAGTCGATAATCAGAGCCAGGGAAGAAAAGCCGTTCACTTCGGTGGAAG	4000
ATCTCATGAAGAGGACCAAGGTCAACAAAAATCACATAGAGCTGATGAAA	
AGCCTGGGTGTTCTCGGGGACCTTCCAGAGACGGAACAGTTCACGCTTTT	4100

C

FIG. 54B

REPLACEMENT SHEET

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MKKIENLKWKNVSFKSLEIDPDAGVVLVSVEKFSEEIEDLVRLLLEKKTRF	
RVIVNGVQKSNGDLRGKILSLLNGNVPYIKDVVFEGNRLILKVLGDFARD	100
RIASKLRSTKKQLDELLPPGTEIMLEVVEPPEDLLKKEVPQPEKREEPKG	
EELKIEDENHIFGQKPRKIVFTPSKIFEYNKKTSVKGKIFKIEKIEGKRT	200
VLLIYLTGDGEDSLICKVFNDVEKVEGKVSVDVIVATGDLLLENGEPTLY	
VKGITKLPEAKRMDKSPVKRVELHAHTKFSQDAITDVNEYVKRAKEWGF	300
PAIALTDHGNVQAI PYFYDAAKEAGIKPIFGIEAYLVSDVEPVIRNLSDD	
STFGDATFVVLDFETTGLDPQVDEIIIEIGAVKIQGGQIVDEYHTLIKPSR	400
EISRKSSEITGITQEMLENKRSIEEVLPEFLGFLEDSEIIVAHNANFDYRF	
LRLWIKKVMGLDWERPYIDTLALAKSLLKLSYSLDSVVEKLGLGPFRHH	500
RALDDARVTAQVFLRFVEMMKKIGITKLSEMEKKLDTIDYTALKPFHCTI	
LVQNKKGKLNLYKLVSDSYIKYFYGVPRILKSELINREGLLVGSACISG	600
ELGRAALEGASDSELEEIAKFYDYIEVMPLDVIAEDEEDLDRERLKEVYR	
KLYRIAKKLNKFVVMTG DVHFLDPEDARGRAALLAPQG NRNFENQPALYL	700
RTTEEMLEKAIEIFEDEEIAREVV IENPNRIADMIEEVQPLEKKLHPPII	
ENADEIVRNLTMKRAYEITYGDPLPEIVQKRVEKELNAIINHGYAVLYLIA	800
QELVQKMSDGYVVGSRGSSLVANLLGITEVNPLPPHYRCPECKYFE	
VVEDDRYGAGYDL PNKNCPRCGAPLRKDGHGIPFETFMGFEGDKVPDIDL	900
NFSGEYQERAHRFVEELFGKDHVYRAGTINTIAERSAVGYVRSYEEKTGK	
KLRKAEMERLVSMITGVKRTTGQHPGGLMIIPKDKEVYDFTPIQYPANDR	1000
NAGVFTTHFAYETIHDDL VKIDALGHDDPTFIKMLKDLTGIDPMTIPMDD	
PDTLAI FSSVKPLGVDPVELESDVGTYGIPEFGTEFVRGMLVETRPKSFA	1100
ELVRISGLSHGTDVWLNNARDWINLG YAKLSEVISCRDDIMNFLIHKGME	
PSLAFKIMENVRKKGKITEEMESEMRR LKVPEWFIESCKRIKYLFPKAHA	1200
VAYVSMAFRIAYFKVHYPLQFYAAYFTIKGDQFDPVLVLRGKEAIKRRLR	
ELKAMPAKDAQKKNEVSVLEVALEMILRGFSFLPPDIFKSDAKKFLIEGN	1300
SLRIPFNKLPGLGDSVAESIIRAREEKPF TSVEDLMKRTKVNKNHIELMK	
SLGVLGDLPETEQFTLF	1367

FIG. 55

REPLACEMENT SHEET

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GTGCTCGCCATGATATGGAACGACACCGTTTTTTGCGTCGTAGACACAGA	
AACCACGGGAACCGATCCCTTTGCCGGAGACCGGATAGTTGAAATAGCCG	100
CTGTTCCCTGTCTTCAAGGGGAAGATCTACAGAAACAAAGCGTTTCACTCT	
CTCGTGAATCCCAGAATAAGAATCCCTGCGCTGATTTCAGAAAGTTCACGG	200
TATCAGCAACATGGACATCGTGGAAGCGCCAGACATGGACACAGTTTACG	
ATCTTTTCAGGGATTACGTGAAGGGAACGGTGCTCGTGTTTCACAACGCC	300
AACTTCGACCTCACTTTTTCTGGATATGATGGCAAAGGAAACGGGAACTT	
TCCAATAACGAATCCCTACATCGACACACTCGATCTTTCAGAAGAGATCT	400
TTGGAAGGCCTCATTCTCTCAAATGGCTCTCCGAAAGACTTGGAATAAAA	
ACCACGATACGGCACCGTGCTCTTCCAGATGCCCTGGTGACCGCAAGAGT	500
TTTTGTGAAGCTTGTTGAATTTCTTGGTGAAAACAGGGTCAACGAATTCA	
TACGTGGAAAACGGGGG	567

FIG. 56

MLAMIWNDTVFCVVDTE TTGTDPFAGDRIVEIAAVPVFKGKIYRNKAFHS	
LVNPRIRIPALIQKVHGISNMDIVEAPDMDTVYDLFRDYVKGTVLVFHNA	100
NFDLTFLDMMAKETGNFPITNPYIDTLDLSEEIFGRPHSLKWLSERLGIK	
TTIRHRALPDALVTARVFVKLVEFLGENRVNEFIRKRG	189

FIG. 57

REPLACEMENT SHEET

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GTGGAAGTTCTTTACAGGAAGTACAGGCCAAAGACTTTTTCTGAGGTTGT	
CAATCAGGATCATGTGAAGAAGGCAATAATCGGTGCTATTCAGAAGAACA	100
GCGTGGCCACCGGATACATATTCGCCGGTCCGAGGGGAACGGGGAAGACT	
ACTCTTGCCAGAATTCTCGCAAAATCCCTGAACTGTGAGAACAGAAAGGG	200
AGTTGAACCCTGCAATTCCTGCAGAGCCTGCAGAGAGATAGACGAGGGAA	
CCTTCATGGACGTGATAGAGCTCGACGCGGCCTCCAACAGAGGAATAGAC	300
GAGATCAGAAGAATCAGAGACGCCGTTGGATACAGGCCGATGGAAGGTAA	
ATACAAAGTCTACATAATAGACGAAGTTCACATGCTCACGAAAGAAGCCT	400
TCAACGCGCTCCTCAAAACACTCGAAGAACCCTCCTTCCCACGTCGTGTTC	
GTGCTGGCAACGACAAACCTTGAGAAGGTTCTTCCCACGATTATCTCGAG	500
ATGTCAGGTTTTTCGAGTTCAGAAACATTCCCGACGAGCTCATCGAAAAGA	
GGCTCCAGGAAGTTGCGGAGGGCTGAAGGAATAGAGATAGACAGGGGAAGCT	600
CTGAGCTTCATCGCAAAAAGAGCCTCTGGAGGCTTGAGAGACGCGCTCAC	
CATGCTCGAGCAGGTGTGGAAGTTCTCGGAAGGAAAGATAGATCTCGAGA	700
CGGTACACAGGGCGCTCGGGTTGATACCGATACAGGTTGTTTCGCGATTAC	
GTGAACGCTATCTTTTCTGGTGATGTGAAAAGGGTCTTCACCGTTCTCGA	800
CGACGTCTATTACAGCGGGAAGGACTACGAGGTGCTCATTTCAGGAAGCAG	
TCGAGGATCTGGTCGAAGACCTGGAAAGGGAGAGAGGGGTTTACCAGGTT	900
TCAGCGAACGATATAGTTCAGGTTTCGAGACAACTTCTGAATCTTCTGAG	
AGAGATAAAGTTCGCCGAAGAAAAACGACTCGTCTGTAAAGTGGGTTTCGG	1000
CTTACATAGCGACGAGGTTCTCCACCACAAACGTTTCAGGAAAACGATGTC	
AGAGAAAAAAACGATAATTCAAATGTACAGCAGAAAGAAGAGAAGAAAGA	1100
AACGGTGAAGGCAAAAGAAGAAAAACAGGAAGACAGCGAGTTTCGAGAAAC	
GCTTCAAAGAACTCATGGAAGAACTGAAAGAAAAGGGCGATCTCTCTATC	1200
TTTGTGCTCTCTCAGCCTCTCAGAGGTGCAGTTTGACGGAGAAAAGGTGAT	
TATTTCTTTTGATTTCATCGAAAGCTATGCATTACGAGTTGATGAAGAAAA	1300
AACTGCCTGAGCTGGAAAACATTTTTTCTAGAAAACTCGGGAAAAAAGTA	
GAAGTTGAACTTCGACTGATGGGAAAAGAAGAAACAATCGAGAAGGTTTC	1400
TCAGAAGATCCTGAGATTGTTTGAACAGGAGGGA	

FIG. 58

MEVLYRKYRPKTFSEVVNQDHVKKAIIGAIQKNSVAHGYIFAGPRGTGKT	
TLARILAKSLNCENRKGVEPCNSCRACREIDEGTFMDVIELDAASNRGID	100
EIRRIRDAVGYPMEGKYKVYIIDEVHMLTKEAFNALLKTLLEPPSHVVF	
VLATTNLEKVPPTIISRCQVFEFRNIPDELIEKRLQEVAEAEAGIEIDREA	200
LSFIAKRASGGLRDALTMLEQVWKFSEGKIDLETVHRALGLIPIQVVRDY	
VNAIFSGDVKRVFTVLDDVYYSBKDYEVLIQEAVEDLVEDLERERGVYQV	300
SANDIVQVSRQLLNLLREIKFAEEKRLVCKVGSAYIATRFSTTNVQENDV	
REKNDNSNVQQKEEKETVKAKEEKQEDSEFEKRFKELMEELKEKGDLSI	400
FVALSLSEVQFDGEKVIISFDSSKAMHYELMKKKLPELENIFSRKLGKKV	
EVELRLMGKEETIEKVSQKILRLFEGEG	478

FIG. 59

REPLACEMENT SHEET

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ATGAAAGTAACCGTCACGACTCTTGAATTGAAAGACAAAATAACCATCGC	
CTCAAAAGCGCTCGCAAAGAAATCCGTGAAACCCATTCTTGCTGGATTTCT	100
TTTTTCGAAGTGAAAGATGGAAATTTCTACATCTGCGCGACCGATCTCGAG	
ACCGGAGTCAAAGCAACCGTGAATGCCGCTGAAATCTCCGGTGAGGCACG	200
TTTTGTGGTACCAGGAGATGTCATTGAGAAGATGGTCAAGGTTCTCCCGAG	
ATGAGATAACGGAACCTTTCTTTAGAGGGGGATGCTCTTGTTATAAGTTCT	300
GGAAGCACCGTTTTCAGGATCACCACCATGCCCGCGGACGAATTTCCAGA	
GATAACGCCTGCCGAGTCTGGAATAACCTTCGAAGTTGACACTTCGCTCC	400
TCGAGGAAATGGTTGAAAAGGTCATCTTCGCCGCTGCCAAAGACGAGTTC	
ATGCGAAATCTGAATGGAGTTTTCTGGGAACTCCACAAGAATCTTCTCAG	500
GCTGGTTGCAAGTGATGGTTTCAGACTTGCACTTGCTGAAGAGCAGATAG	
AAAACGAGGAAGAGGCGAGTTTCTTGCTCTCTTTGAAGAGCATGAAAGAA	600
GTTCAAAACGTGCTGGACAACACAACGGAGCCGACTATAACGGTGAGGTA	
CGATGGAAGAAGGGTTTCTCTGTGCGACAAATGATGTAGAAACGGTGATGA	700
GAGTGGTCGACGCTGAATTTCCCGATTACAAAAGGGTGATCCCCGAAACT	
TTCAAAACGAAAGTGGTGGTTTCCAGAAAAGAACTCAGGGAATCTTTGAA	800
GAGGGTGATGGTGATTGCCAGCAAGGGAAGCGAGTCCGTGAAGTTCGAAA	
TAGAAGAAAACGTTATGAGACTTGTGAGCAAGAGCCCGGATTATGGAGAA	900
GTGGTCGATGAAGTTGAAGTTCAAAAAGAAGGGGAAGATCTCGTGATCGC	
TTTCAACCCGAAGTTCATCGAGGACGTTTTGAAGCACATTGAGACTGAAG	1000
AAATCGAAATGAACTTCGTTGATTCTACCAGTCCATGTCAGATAAATCCA	
CTCGATATTTCTGGATACCTTTACATAGTGATGCCCATCAGACTGGCA	1098

FIG. 60

MKVTVTTLELKDKITIASKALAKKSVKPILAGFLFEVKDGNFYICATDLE	
TGVKATVNAAEISGEARFVVPGDVIQKMVKVLPDEITELSLGDALVISS	100
GSTVFRITTMPADEFPFITPAESGITFEVDTSLLEEMVEKVIFAAAKDEF	
MRNLNGVFWELHKNLLRLVASDGFRLALAEQIENEEEASFLLSLKSMKE	200
VQNVLDNTTEPTITVRYDGRRVSLSTNDVETVMRVVDAEFPDYKRVIPET	
FKTKVVVSRKELRESLKRVMVIAASKGSESVKFEIEENVMLVSKSPDYGE	300
VVDEVEVQKEGEDLVIAFNPKFIEDVLKHIEETEEIEMNFVDSTSPCQINP	
LDISGYLYIVMPIRLA	366

FIG. 61

REPLACEMENT SHEET

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ATGCCAGTCACGTTTCTCACAGGTACTGCAGAACTCAGAAGGAAGAATT	
GATAAAGAACTCCTGAAGGATGGTAACGTGGAGTACATAAGGATCCATC	100
CGGAGGATCCCGACAAGATCGATTTTCATAAGGTCTTTACTCAGGACAAAG	
ACGATCTTTTCCAACAAGACGATCATTGACATCGTCAATTTTCGATGAGTG	200
GAAAGCACAGGAGCAGAAGCGTCTCGTTGAACTTTTGAAAAACGTACCGG	
AAGACGTTTCATATCTTCATCCGTTCTCAAAAAACAGGTGGAAAGGGAGTA	300
GCGCTGGAGCTTCCGAAGCCATGGGAAACGGACAAGTGGCTTGAGTGGAT	
AGAAAAGCGCTTCAGGGAGAATGGTTTGCTCATCGATAAAGATGCCCTTC	400
AGCTGTTTTTCTCCAAGGTTGGAACGAACGACCTGATCATAGAAAGGGAG	
ATTGAAAAACTGAAAGCTTATTCCGAGGACAGAAAGATAACGGTAGAAGA	500
CGTGGAAGAGGTCGTTTTTACCTATCAGACTCCGGGATACGATGATTTTT	
GCTTTGCTGTTTCCGAAGGAAAAAGGAAGCTCGCTCACTCTCTTCTGTCTG	600
CAGCTGTGGAAAACACAGAGTCCGTGGTGATTGCCACTGTCCTTGCGAA	
TCACTTCTTGATCTCTTCAAAATCCTCGTTCTTGTGACAAAGAAAAGAT	700
ACTACACCTGGCCTGATGTGTCCAGGGTGTCCAAAGAGCTGGGAATTCCC	
GTTCCCTCGTGTGGCTCGTTTCCTCGGTTTCTCCTTTAAGACCTGGAAATT	800
CAAGGTGATGAACCACCTCCTCTACTACGATGTGAAGAAGGTTAGAAAGA	
TACTGAGGGATCTCTACGATCTGGACAGAGCCGTGAAAAGCGAAGAAGAT	900
CCAAAACCGTTCTTCCACGAGTTCATAGAAGAGGTGGCACTGGATGTATA	
TTCTCTTCAGAGAGATGAAGAA	972

FIG. 62

MPVTFLTGTAEQTKEELIKKLLKDG NVEYIRIHPEDPDKIDFIRSLRLTK	
TIFSNKTIIDIVNFDEWKAQEQKRLVELLKNVPEDVHIFIRSQKTGGKGV	100
ALELPKPWETDKWLEWIEKRFRENGLLIDKDALQLFFSKVGTNDLI IERE	
IEKLKAYSEDRKITVEDVEEVVFTYQTPGYDDFCFAVSEGKRKLAHSLLS	200
QLWKTTESVVIATVLANHFLDLFKILVLVTKKRYYTWPDVSRVSKELGIP	
VPRVARFLGFSFKTWKFKVMNHLLEYDVKKVRKILRDLYDLDRVAVKSEED	300
PKPFFHEFIEEVALDVYSLQRDEE	

FIG. 63

REPLACEMENT SHEET

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ATGAACGATTTGATCAGAAAGTACGCTAAAGATCAACTGGAAACTTTGAA	
AAGGATCATAGAAAAGTCTGAAGGAATATCCATCCTCATAAATGGAGAAG	100
ATCTCTCGTATCCGAGAGAAGTATCCCTTGAAC TTCCCGAGTACGTGGAG	
AAATTTCCCCCGAAGGCCTCGGATGTTCTGGAGATAGATCCCGAGGGGGA	200
GAACATAGGCATAGACGACATCAGAACGATAAAGGACTTCCTGAACTACA	
GCCCCGAGCTCTACACGAGAAAGTACGTGATAGTCCACGACTGTGAAAGA	300
ATGACCCAGCAGGCGGCGAACGCGTTTCTGAAGGCCCTTGAAGAACCACC	
AGAATACGCTGTGATCGTTCTGAACACTCGCCGCTGGCATTATCTACTGC	400
CGACGATAAAGAGCCGAGTGTTTCAGAGTGGTTGTGAACGTTCCAAAGGAG	
TTCAGAGATCTCGTGAAAGAGAAAATAGGAGATCTCTGGGAGGAACTTCC	500
ACTTCTTGAGAGAGACTTCAAAACGGCTCTCGAAGCCTACAAACTTGGTG	
CGGAAAAACTTTCTGGATTGATGGAAAGTCTCAAAGTTTTTGAGACGGAA	600
AAACTCTTGAAAAAGGTCCTTTCAAAGGCCTCGAAGGTTATCTCGCATG	
TAGGGAGCTCCTGGAGAGATTTTCAAAGGTGGAATCGAAGGAATTCTTTG	700
CGCTTTTTTGATCAGGTGACTAACACGATAACAGGAAAAGACGCGTTTCTT	
TTGATCCAGAGACTGACAAGAATCATTTCTCCACGAAAACACATGGGAAAG	800
CGTTGAAGATCAAAAAAGCGTGTCTTTCCTCGATTCAATTCTCAGGGTGA	
AGATAGCGAATCTGAACAACAACTCACTCTGATGAACATCCTCGCGATA	900
CACAGAGAGAGAAAGAGAGGTGTCAACGCTTGGAGC	

FIG. 64

MNDLIRKYAKDQLETLKRIIEKSEGISILINGEDLSYPREVSLELPEYVE	
KFPPKASDVLEIDPEGENIGIDDIRTIKDFLNYSPELYTRKYVIVHDCER	100
MTQQAANAFLKALEEPPEYAVIVLNTRRWYLLPTIKSRVFRVVVNPKE	
FRDLVKEKIGDLWEELPLLERDFKTALEAYKLGAEKLSGLMESLKVLETE	200
KLKLVLSKGLEGYLACRELLERFSKVESKEFFALFDQVTNTITGKDAFL	
LIQRLTRIILHENTWESVEDKSVSFLDSILRVKIANLNNKLTLMNILAIH	300
RERKRGVNAWS	

FIG. 65

REPLACEMENT SHEET

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ATGTCTTTCTTCAACAAGATCATACTCATAGGAAGACTCGTGAGAGATCC	
CGAAGAGAGATACACGCTCAGCGGAACCTCCAGTCACCACCTTCACCATAG	100
CGGTGGACAGGGTTCCCAGAAAGAACGCGCCGGACGACGCTCAAACGACT	
GATTTCTTCAGGATCGTCACCTTTGGAAGACTGGCAGAGTTCGCTAGAAC	200
CTATCTCACCAAAGGAAGGCTCGTTCTCGTCGAAGGTGAAATGAGAATGA	
GAAGATGGGAAACACCCACTGGAGAAAAGAGGGTATCTCCGGAGGTTGTC	300
GCAAACGTTGTTAGATTTCATGGACAGAAAACCTGCTGAAACAGTTAGCGA	
GACTGAAGAGGAGCTGGAAATACCGGAAGAAGACTTTTCCAGCGATACCT	400
TCAGTGAAGATGAACCACCATT	

FIG. 66

MSFFNKIILIGRLVRDPEERYTLSGTPVTTFTIAVDRVPRKNAPDDAQT	
DFFRIVTFGRLAEFARTYLTGRLVLVEGEMRMRRWETPTGEKRVSPVV	100
ANVVRFMDRKPAETVSETEEELEIPEEDFSSDTFSEDEPPF	

FIG. 67

REPLACEMENT SHEET

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ATGCGTGTTCCCCCGCACAACTTAGAGGCCGAAGTTGCTGTGCTCGGAAG	
CATATTGATAGATCCGTCGGTAATAAACGACGTTCTTGAAATTTTGAGCC	100
ACGAAGATTTCTATCTGAAAAAACACCAACACATCTTCAGAGCGATGGAA	
GAGCTTTACGACGAAGGAAAACCGGTGGACGTGGTTTCCGTCTGTGACAA	200
GCTTCAAAGCATGGGAAAACCTCGAGGAAGTAGGTGGAGATCTGGAAGTGG	
CCCAGCTCGCTGAGGCTGTGCCAGTTCTGCACACGCACTTCACTACGCG	300
GAGATCGTCAAGGAAAAATCCATTCTGAGGAAACTCATTGAGATCTCCAG	
AAAAATCTCAGAAAGTGCCTACATGGAAGAAGATGTGGAGATCCTGCTCG	400
ACAACGCAGAAAAGATGATCTTCGAGATCTCAGAGATGAAAACGACAAAA	
TCCTACGATCATCTGAGAGGCATCATGCACCGGGTGTTTGAAAACCTGGA	500
GAACCTTCAGGGAAAGAGCCAACCTTATAGAACCCGGTGTGCTCATAACGG	
GACTACCAACGGGATTCAAAGTCTGGACAAACAGACCACAGGGTTCCAC	600
AGCTCCGATCTGGTGATAATAGCAGCGAGACCCTCCATGGGAAAAACCTC	
CTTCGCACTCTCAATAGCGAGGAACATGGCTGTCAATTTCGAAATCCCCG	700
TCGGAATATTCAGTCTCGAGATGTCCAAGGAACAGCTCGCTCAAAGACTA	
CTCAGCATGGAGTCCGGTGTGGATCTTTACAGCATCAGAACAGGATACCT	800
GGATCAGGAGAAGTGGGAAAGACTCACAAATAGCGGCTTCTAAACTCTACA	
AAGCACCCATAGTTGTGGACGATGAGTCACTCCTCGATCCGCGATCGTTG	900
AGGGCAAAGCGAGAAGGATGAAAAAAGAATACGATGTAAAAGCCATTTT	
TGTCGACTATCTCCAGCTCATGCACCTGAAAGGAAGAAAAGAAAGCAGAC	1000
AGCAGGAGATATCCGAGATCTCGAGATCTCTGAAGCTCCTTGCGAGGGAA	
CTCGACATAGTGGTGATAGCGCTTTCACAGCTTTCGAGGGCCGTAGAACA	1100
GAGAGAAGACAAAAGACCGAGGCTGAGTGACCTCAGGGAATCCGGTGCGA	
TAGAACAGGACGCGACACAGTCATCTTCATCTACAGGGAGGAATATTAC	1200
AGGAGCAAAAAATCCAAAGAGGAAAGCAAGCTTCACGAACCTCACGAAGC	
TGAAATCATAATAGGTAAACAGAGAAACGGTCCCGTTGGAACGATCACTC	1300
TGATCTTCGACCCCAGAACGGTTACGTTCCATGAAGTCGATGTGGTGCAT	
TCA	1353

FIG. 68

MRVPPHNLEAEVAVLGSILIDPSVINDVLEILSHEDFYLKXKHQHIFRAME	
ELYDEGKPVDDVSVCDKLQSMGKLEEVGGDLEVAQLAEAVPSSAHALHYA	100
EIVKEKSILRKLIEISRKISESAYMEEDVEILLDNAEKMIFEISEMKTTK	
SYDHLRGIMHRVFENLENFRERANLIEPGVLITGLPTGFKSLDKQTTGFH	200
SSDLVIIAARPSMGKTSFALSIARNMAVNFEIPVGIFSLEMSKEQLAQL	
LSMESGVDLYSIRTGYLDQEKWERLTIAASKLYKAPIVVDDDESLLDPRSL	300
RAKARRMKKEYDVKAIFVDYLQMLHLKGRKESRQQEISEISRSLKLLARE	
LDIVVIALSQLSRAVEQREDKRPRLSDLRESGAIEQDADTVIFIYREEYY	400
RSKKSKEESKLHEPHEAEIIIGKQRNGPVGTTITLIFDPRTVTFHEVDVVH	
S	451

FIG. 69

REPLACEMENT SHEET

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GTGATTCCTCGAGAGGTCATCGAGGAAATAAAAGAAAAGGTTGACATCGT	100
AGAGGTCATTTCCGAGTACGTGAATCTTACCCGGGTAGGTTCTCCTACA	
GGGCTCTCTGTCCCTTTCATTCAGAAACCAATCCTTCTTTCTACGTTTCAT	200
CCGGGTTTGAAGATATACCATTGTTTCGGCTGCGGTGCGAGTGGAGACGT	
CATCAAATTTCTTCAAGAAATGGAAGGGATCAGTTTCCAGGAAGCGCTGG	300
AAAGACTTGCCAAAAGAGCTGGGATTGATCTTTCTCTCTACAGAACAGAA	
GGGACTTCTGAATACGGAAAATACATTTCGTTTGTACGAAGAAACGTGGAA	400
AAGGTACGTCAAAGAGCTGGAGAAATCGAAAGAGGCCAAAAGACTATTTAA	
AAAGCAGAGGCTTCTCTGAAGAAGATATAGCAAAGTTCGGCTTTGGGTAC	500
GTCCCCAAGAGATCCAGCATCTCTATAGAAGTTGCAGAAGGCATGAACAT	
AACACTGGAAGAACTTGTCAGATACGGTATCGCGCTGAAAAAGGGTGATC	600
GATTCGTTGATAGATTTCGAAGGAAGAATCGTTGTTCCAATAAAGAACGAC	
AGTGGTCATATTGTGGCTTTTGGTGGGCGTGCTCTCGGCAACGAAGAACC	700
GAAGTATTTGAACTCTCCAGAGACCAGGTATTTTTCGAAGAAGAAGACCC	
TTTTTCTCTTCGATGAGGCGAAAAAAGTGGCAAAAGAGGTTGGTTTTTTC	800
GTCATCACCGAAGGCTACTTCGACGCGCTCGCATTTCAGAAAGGATGGAAT	
ACCAACGGCGGTGCTGTTCTTGGGGCGAGTCTTTCAAGAGAGGCGATTC	900
TAAAACTTTCGGCGTATTTCGAAAAACGTCATACTGTGTTTCGATAATGAC	
AAAGCAGGCTTCAGAGCCACTCTCAAATCCCTCGAGGATCTCCTAGACTA	1000
CGAATTCAACGTGCTTGTGGCAACCCCTCTCCTTACAAAGACCCAGATG	
AACTCTTTCAGAAAGAAGGAGAAGGTTTCATTGAAAAAGATGCTGAAAAAC	1100
TCGCGTTCGTTTCGAATATTTTCTGGTGACGGCTGGTGAGGTCTTCTTTGA	
CAGGAACAGCCCCGCGGGTGTGAGATCCTACCTTTCTTTCCTCAAAGGTT	1200
GGGTCCAAAAGATGAGAAGGAAAGGATATTTGAAACACATAGAAAATCTC	
GTGAATGAGGTTTCATCTTCTCTCCAGATACCAGAAAACCAGATTTTGA	1300
CTTTTTTTGAAAGCGACAGGTCTAACACTATGCCTGTTTCATGAGACCAAGT	
CGTCAAAGGTTTACGATGAGGGGAGAGGACTGGCTTATTTGTTTTTTGAAC	1400
TACGAGGATTTGAGGGAAAAGATTCTGGAACCTGGACTTAGAGGTACTGGA	
AGATAAAAACGCGAGGGAGTTTTTCAAGAGAGTCTCACTGGGAGAAGATT	1500
TGAACAAAGTCATAGAAAACCTCCCAAAAGAGCTGAAAGACTGGATTTTTT	
GAGACAATAGAAAGCATTCCTCCTCCAAAGGATCCCGAGAAATTCCTCGG	1600
TGACCTCTCCGAAAAGTTGAAAATCCGACGGATAGAGAGACGTATCGCAG	
AAATAGATGATATGATAAAGAAAGCTTCAAACGATGAAGAAAGGCGTCTT	1695
CTTCTCTCTATGAAAGTGGATCTCCTCAGAAAAATAAAGAGGAGG	

FIG. 70

REPLACEMENT SHEET

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MIPREVIEEIKEKVDIVEVISEYVNLTRVGSSYRALCPFHSETNPSFYVH	
PGLKIYHCFGCGASGDVIKFLQEMEGISFQEALERLAKRAGIDLSLYRTE	100
GTSEYGKYIRLYEETWKRYVKELEKSKEAKDYLSRGSSEEDIAKFGFGY	
VPKRSSISIEVAEGMNITLEELVRYGIALKKGDRFVDRFEGRIVVPIKND	200
SGHIVAFGGRALGNEEPKYLNSPETRYFSKKKTLFLFDEAKKVAKEVGFF	
VITEGYFDALAFRKDGIPTAVAVLGASLSREAILKLSAYSKNVILCFDND	300
KAGFRATLKSLEDLLDYEFNVLVATPSPYKDPDELFOKEGEGSLKKMLKN	
SRSFEYFLVTAGEVFFDRNSPAGVRSYLSFLKGWVQKMRRKGYLKHIENL	400
VNEVSSSLQIPENQILNFFESDRSNTMPVHETKSSKVYDEGRGLAYLFLN	
YEDLREKILELDLEVLEDKNAREFFKRVSLGEDLNKVIENFPKELKDWIF	500
ETIESIPPPKDPEKFLGDLSEKLKIRRIERRIAEIDDMIKKASNDEERRL	
LLSMKVDLLRKIKRR	565

FIG. 71

ATGGCTCTACACCCGGCTCACCCCTGGGGCAATAATCGGGCACGAGGCCGT	
TCTCGCCCTCCTTCCCCGCCTCACCGCCCAGACCCTGCTCTTCTCCGGCC	100
CCGAGGGGGTGGGGCGGCGCACCGTGGCCCCGCTGGTACGCCTGGGGGCTC	
AACCGCGGCTTCCCCCGCCCTCCCTGGGGGAGCACCCGGACGTCTCTGA	200
GGTGGGGCCCAAGGCCCGGGACCTCCGGGGCCGGGCCGAGGTGCGGCTGG	
AGGAGGTGGCGCCCCCTCTTGAGTGGTGCTCCAGCCACCCCGGGAGCGG	300
GTGAAGGTGGCCATCCTGGACTCGGCCCACCTCCTCACCGAGGCCGCGC	
CAACGCCCTCCTCAAGCTCCTGGAGGAGCCCCCTTCTACGCCCGCATCG	400
TCCTCATCGCCCCAAGCCGCGCCACCCTCCTCCCCACCCTGGCCTCCCGG	
GCCACGGAGGTGGCATTCGCCCCCGTGCCCGAGGAGGCCCTGCGCGCCCT	500
CACCCAGGACCCGGAGCTCCTCCGCTACGCCGCCGGGGCCCCGGGCCGCC	
TCCTTAGGGCCCTCCAGGACCCGGAGGGGTACCGGGCCCGCATGGCCAGG	600
GCGCAAAGGGTCTTGAAAGCCCCGCCCTGGAGCGCCTCGCTTTGCTTCG	
GGAGCTTTTGCCGAGGAGGAGGGGGTCCACGCCCTCCACGCCGTCTTAA	700
AGCGCCCGGAGCACCTCCTTGCCCTGGAGCGGGCGCGGGAGGCCCTGGAG	
GGGTACGTGAGCCCCGAGCTGGTCCTCGCCCGGCTGGCCTTAGACTTAGA	800
GACA	

FIG. 72

MALHPAHPGAIIGHEAVLALLPRLTAQTLLFSGPEGVGRRTVARWYAWGL	
NRGFPPPSLGEHPDVLEVGPKARDLRGRAEVRLEEVAPLLEWCSSHPRER	100
VKVAILDSAHLLTEAAANALLKLLLEPPSYARIVLIAPSRATLLPTLASR	
ATEVAFAPVPEEALRALTQDPELLRYAAGAPGRLLRALQDPEGYRARMAR	200
AQRVLKAPPLERLALLRELLAEEEGVHALHAVLKRPEHLLALERAREALE	
GYVSPELVLARLALDLET	268

FIG. 73

REPLACEMENT SHEET

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ATGCTGGACCTGAGGGAGGTGGGGGAGGCGGAGTGGAAGGCCCTAAAGCC	
CCTTTTGGAAAGCGTGCCCGAGGGCGTCCCCGTCCTCCTCCTGGACCCTA	100
AGCCAAGCCCCCTCCCGGGCGGCCTTCTACCGGAACCGGGAAAGGCGGGAC	
TTCCCCACCCCCAAGGGGAAGGACCTGGTGCGGCACCTGGAAAACCGGGC	200
CAAGCGCCTGGGGCTCAGGCTCCCGGGCGGGGTGGCCCAGTACCTGGCCT	
CCCTGGAGGGGGACCTCGAGGCCCTGGAGCGGGAGCTGGAGAAGCTTGCC	300
CTCCTCTCCCCACCCCTCACCCCTGGAGAAGGTGGAGAAGGTGGTGGCCCT	
GAGGCCCCCCCCCTCACGGGCTTTGACCTGGTGCGCTCCGTCCTGGAGAAGG	400
ACCCCAAGGAGGCCCTCCTGCGCCTAGGCGGCCTCAAGGAGGAGGGGGAG	
GAGCCCCCTCAGGCTCCTCGGGGCCCTCTCCTGGCAGTTCGCCCTCCTCGC	500
CCGGGCCTTCTTCTCCTCCGGGAAAACCCAGGCCCAAGGAGGAGGACC	
TCGCCCCGCTCGAGGCCACCCCTACGCCGCCCGCCGCGCCCTGGAGGCG	600
GCGAAGCGCCTCACGGAAGAGGCCCTCAAGGAGGCCCTGGACGCCCTCAT	
GGAGGCGGAAAAGAGGGCCAAGGGGGGGAAAGACCCGTGGCTCGCCCTGG	700
AGGCGGCGGTCTCCTCCGCCTCGCCCCGTTGA	

FIG. 74

MVIAFTGDPFLAREALLEEARLRGLSRFTEPTPEALAQALAPGLFGGGGA	
MLDLREVGEAEWKALKPLLESVPEGVPVLLLDPKPSPSRAAFYRNRERRD	100
FPTPKGKDLVRHLENRAKRLGLRLPGGVAQYLASLEGDLEALERELEKLA	
LLSPPLTLEKVEKVVALRPPLTGFDLVRVLEKDPKEALLRLGGLKEEGE	200
EPLRLLGALSWQFALLARAFFLLRENPRPKEEDLARLEAHPYAARRALEA	
AKRLTEEALKEALDALMEAEKRAKGGKDPWLALEAAVLRRLAR	292

FIG. 75

REPLACEMENT SHEET

74/83

ATGGCTCGAGGCCTGAACCGCGTTTTCTCATCGGCGCCCTCGCCACCCG	
GCCGGACATGCGCTACACCCCGGCGGGGCTCGCCATTTTGGACCTGACCC	100
TCGCCGGTCAGGACCTGCTTCTTTCCGATAACGGGGGGGAACCGGAGGTG	
TCCTGGTACCACCGGGTGAGGCTCTTAGGCCGCCAGGCGGAGATGTGGGG	200
CGACCTCTTGGAACCAAGGGCAGCTCGTCTTCGTGGAGGGCCGCCTGGAGT	
ACCGCCAGTGGGAAAGGGAGGGGGAGAAGCGGAGCGAGCTCCAGATCCGG	300
GCCGACTTCCGGACCCCCCTGGACGACCGGGGGGAAGAAGCGGGCGGAGGAC	
AGCCGGGGCCAGCCCAGGCTCCGCGCCGCCCTGAACCAGGTCTTCTCAT	400
GGGCAACCTGACCCGGGACCCGGAACCTCCGCTACACCCCCCAGGGCACCG	
CGGTGGCCCGGCTGGGCCTGGCGGTGAACGAGCGCCGCCAGGGGGCGGAG	500
GAGCGCACCCACTTCGTGGAGGTTCAAGCCTGGCGCGACCTGGCGGAGTG	
GGCCGCCGAGCTGAGGAAGGGCGACGGCCTTTTCGTGATCGGCAGGTTGG	600
TGAACGACTCCTGGACCAGCTCCAGCGGCGAGCGGCGCTTCCAGACCCGT	
GTGGAGGCCCTCAGGCTGGAGCGCCCCACCCGTGGACCTGCCCAGGCCTG	700
CCCAGGCCGGCGGAACAGGTCCCGCGAAGTCCAGACGGGTGGGGTGGACA	
TTGACGAAGGCTTGAAGACTTTCCGCCGGAGGAGGATTTGCCGTTTTGA	800
GCACGAA	

FIG. 76

MARGLNRVFLIGALATRPDMRYTPAGLAILDLTLAGQDLLLLSDNGGEPEV	
SWYHRVRLLRQAEMWGDLLDQGQLVFVEGRLEYRQWEREGEKRSELQIR	100
ADFLDPLDDRGGKKRAEDSRGQPRRLRAALNQVFLMGNLTRDPELRYTPQGT	
AVARLGLAVNERRQGAEERTHFVEVQAWRDLAEWAAELRKGDGLFVIGRL	200
VNDSWTSSSGERRFQTRVEALRLERPTRGPAQACPGRNRNSREVQTGGVD	
IDEGLEDFPPEEDLPF	266

FIG. 77

REPLACEMENT SHEET

75/83

AATTCGACATTTCAATTGAATCGTTTATTCCGCTTGAAAAAGAAGGCAA	
GTTGCTCGTTGATGTGAAAAGACCGGGGAGCATCGTACTGCAGGCGCGCT	100
TTTTCTCTGAAATCGTGAAAAAACTGCCGCAACAAACGGTGGAAATCGAA	
ACGGAAGACAACTTTTTGACGATCATCCGCTCGGGGCACTCAGAATTCCG	200
CCTCAATGGGCTAAACGCCGACGAATATCCGCGCCTGCCGCAAATTGAAG	
AAGAAAACGTGTTTCAAATCCCGGCTGATTTATTGAAAACCGTGATTCGG	300
CAAACGGTGTTTCGCCGTTTCTACATCGGAAACGCGCCCAATCTTGACAGG	
TGTCAACTGGAAAGTTGAACATGGCGAGCTTGTCTGCACAGCGACCGACA	400
GTCATCGCTTAGCCATGCGCAAAGTGAAAATTGAGTCGGAAAATGAAGTA	
TCATACAACGTCGTCATCCCTGGAAAAAGTCTTAATGAGCTCAGCAAAAT	500
TTTGATGACGGCAACCACCCGGTGGACATCGTCATGACAGCCAATCAAG	
TGCTATTTAAGGCCGAGCACCTTCTCTTCTTTTCCCGGCTGCTTGACGGC	600
AACTATCCGGAGACGGCCCGCTTGATTCCAACAGAAAGCAAAACGACCAT	
GATCGTCAATGCAAAAGAGTTTCTGCAGGCAATCGACCGAGCGTCCTTGC	700
TTGCTCGAGAAGGAAGGAACAACGTTGTGAAACTGACGACGCTTCCTGGA	
GGAATGCTCGAAATTTCTTCGATTTCTCCGAGATCGGGAAAGTGACGGAG	800
CAGCTGCAAACGGAGTCTCTTGAAGGGGAAGAGTTGAACATTTTCGTTTCA	
CGCGAAATATATGATGGACGCGTTGCGGGCGCTTGATGGAACAGACATTT	900
CAAATCAGCTTCACTGGGGCCATGCGGCCGTTTCTGTTGCGCCCCGCTTCA	
ACCGATTGATGCTTCAGCTCATTTTGCCGGTGAGAACATAT	992

FIG. 78

NSDISIIIESFIPILEKEGKLLVDVKRPGSIVLQARFFSEIVKKLPQQTVEI	
ETEDNFLTIIRSGHSEFRLNGLNADEYPRLPQIEEENVFQIPADLLKTVI	100
RQTVFAVSTSETRPILTGVDNWKVEHGELVCTATDSHRLAMRKVKIIESEN	
EVSYNVVIIPGKSLNELSKIILDDGNHPVDIVMTANQVLFKAHLLFFSRL	200
LDGNYPETARLIPTESKTTMIVNAKEFLQAIDRASLLAREGRNNVVKLT	
LPGGMLEISSISPEIGKVTEQLQTESLEGEELNISFSAKYMMDALRALDG	300
TDIQISFTGAMRPFLLRPLHTDSMLQLILPVRTY	

FIG. 79

REPLACEMENT SHEET

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ATGATTAACCGCGTCATTTTGGTCGGCAGGTAAACGAGAGATCCGGAGTT	
GCGTTACACTCCAAGCGGAGTGGCTGTTGCCACGTTTACGCTCGCGGTCA	100
ACCGTCCGTTTACAAATCAGCAGGGCGAGCGGGAAACGGATTTTATTCAA	
TGTGTCGTTTGGCGCCGCCAGGCGGAAAACGTCGCCAACTTTTGGAAAA	200
GGGGAGCTTGGCTGGTGTTCGATGGCCGACTGCAAACCCGCAGCTATGAAA	
ATCAAGAAGGTCGGCGTGTGTACGTGACGGAAGTGGTGGCTGATAGCGTC	300
CAATTTCTTGAGCCGAAAGGAACGAGCGAGCAGCGAGGGGCGACAGCAGG	
CGGCTACTATGGGGATCCATTCCCATTCGGGCAAGATCAGAACCACCAAT	400
ATCCGAACGAAAAAGGGTTTGGCCGCATCGATGACGATCCTTTCGCCAAT	
GACGGCCAGCCGATCGATATTTCTGATGATGATTTGCCGTTT	492

FIG. 80

MINRVILVGRLTRDPELRYTPSGVAVATFTLAVNRPFTNQSYENQEGRRV	
YVTEVVADSVQFLEPKGTSEQRGATAGGYQGERETDFIQCVVWRRQAEN	100
VANFLKKGSLAGVDGRLQTRGDPFPFGQDQNHQYPNEKGFGRIDDDPFAN	
DGQPIDISDDDLPF	164

FIG. 81

REPLACEMENT SHEET

77/83

ATGCTGGAACGCGTATGGGGAAACATTGAAAAACGGCGTTTTTCTCCCCT	
TTATTTATTATACGGCAATGAGCCGTTTTTATTAACGGAAACGTATGAGC	100
GATTGGTGAACGCAGCGCTTGGCCCCGAGGAGCGGGAGTGGAAC TTGGCT	
GTGTACGACTGCGAGGAAACGCCGATCGAGGCGGCGCTTGAGGAGGCCGA	200
GACGGTGCCGTTTTTTCGGCGAGCGGCGTGTCATTCTCATCAAGCATCCAT	
ATTTTTTTTACGTCTGAAAAAGAGAAGGAGATCGAACATGATTTGGCGAAG	300
CTGGAGGCGTACTTGAAGGCGCCGTCGCCGTTTTTCGATCGTCGTCTTTTT	
CGCGCCGTACGAGAAGCTTGATGAGCGAAAAAAATTACGAAGCTCGCCA	400
AAGAGCAAAGCGAAGTCGTCATCGCCGCCCCGCTCGCCGAAGCGGAGCTG	
CGTGCCTGGGTGCGGCGCCGCATCGAGAGCCAAGGGGCGCAAGCAAGCGA	500
CGAGGCGATTGATGTCCTGTTGCGGCGGGCCGGGACGCAGCTTTCGCCT	
TGGCGAATGAAATCGATAAATTGGCCCTGTTTGCCGGATCGGGCGGAACC	600
ATCGAGGCGGCGGCGGTTGAGCGGCTTGTCGCCCGCACGCCGGAAGAAAA	
CGTATTTGTGCTTGTCGAGCAAGTGGCGAAGCGCGACATTCCAGCAGCGT	700
TGCAGACGTTTTTATGATCTGCTTGAAAAACAATGAAGAGCCGATCAAAATT	
TTGGCGTTGCTCGCCGCCCATTTCCGCTTGCTTTCGCAAGTGAAATGGCT	800
TGCCTCCTTAGGCTACGGACAGGCGCAAATTGCTGCGGCGCTCAAGGTGC	
ACCCGTTCCGCGTCAAGCTCGCTCTTGCTCAAGCGGCCCGCTTCGCTGAC	900
GGAGAGCTTGCTGAGGCGATCAACGAGCTCGCTGACGCCGATTACGAAGT	
GAAAAGCGGGGCGGTTCGATCGCCGTTGGCCGTTGAGCTGCTTCTGATGC	1000
GCTGGGGCGCCCCGCCGCGCAAGCGGGGCGCCACGGCCGGCGG	

FIG. 82

MLERVWGNIEKRRFSPLYLLYGNEPFLLTETYERLVNAALGPEEREWNLA	
VYDCEETPIEAALAEAETVPFFGERRVILIKHPYFFTSEKEKEIEHDLAK	100
LEAYLKAPSPFSIVVFFAPYEKLDERKKITKLAKEQSEVVIAAPLAEAEEL	
RAWVRRRIESQGAQASDEAIDVLLRRAGTQLSALANEIDKLALFAGSGGT	200
IEAAVERLVARTPEENVFVLVEQVAKRDI PAALQTFYDLLENNEEPIKI	
LALLAAHFRLLSQVKWLASLGYGQAQIAAALKVHPFRVKLALAQAARFAD	300
GELAEAINELADADYEVKSGAVDRRLAVELLLMRWGARPAQAGRHGR	

FIG. 83

REPLACEMENT SHEET

78/83

ATGCGATGGGAACAGCTAGCGAAACGCCAGCCGGTGGTGGCGAAAATGCT	
GCAAAGCGGCTTGGAAAAAGGGCGGATTTCTCATGCGTACTTGTTTGAGG	100
GGCAGCGGGGGACGGGCAAAAAAGCGGCCAGTTTGTGTGTGGCGAAACGT	
TTGTTTTGTCTGTCCCCAATCGGAGTTTCCCCGTGTCTAGAGTGCCGCAA	200
CTGCCGGCGCATCGACTCCGGCAACCACCCTGACGTCCGGGTGATCGGCC	
CAGATGGAGGATCAATCAAAAAGGAACAAATCGAATGGCTGCAGCAAGAG	300
TTCTCGAAAACAGCGGTTCGAGTCGGATAAAAAAATGTACATCGTTGAGCA	
CGCCGATCAAATGACGACAAGCGCTGCCAACAGCCTTCTGAAATTTTGG	400
AAGAGCCGCATCCGGGGACGGTGGCGGTATTGCTGACTGAGCAATACCAC	
CGCCTGCTAGGGACGATCGTTTCCCGCTGTCAAGTGCTTTCGTTCCGGCC	500
GTTGCCGCCCGGCAGAGCTCGCCCAAGGACTTGTCGAGGAGCACGTGCCGT	
TGCCGTTGGCGCTGTTGGCTGCCCATTTGACAAACAGCTTCGAGGAAGCA	600
CTGGCGCTTGCCAAAGATAGTTGGTTTGCCGAGGCGCGAACATTAGTGCT	
ACAATGGTATGAGATGCTGGGCAAGCCGGAGCTGCAGCTTTTGTTTTTCA	700
TCCACGACCGCTTGTTTCCGCATTTTTTTGAAAGCCATCAGCTTGACCTT	
GGACTTG	757

FIG. 84

MRWEQLAKRQPVVAKMLQSGLEKGRISHAYLFEGQRTGKKAASLLLAKR	
LFCLSPIGVSPCLECRNCRRIDSGNHPDVRVIGPDGGSIKKEQIEWLQQE	100
FSKTAVESDKMYIVEHADQMTTSAANSLLKFLEEPHPGTVAVLLTEQYH	
RLLGTIVSRCQVLSFRPLPPAELAQGLVEEHVPLPLALLAAHLTNSFEEA	200
LALAKDSWFAEARTLVLQWYEMLGKPELQLLFFIHDRLFPHFLESHQLDL	
GL	252

FIG. 85

REPLACEMENT SHEET

79/83

GTGGCATAACCAAGCGTTATATCGCGTGTTTCGGCCGCAGCGCTTTGCGGA	
CATGGTCGGCCAAGAACACGTGACCAAGACGTTGCAAAGCGCCCTGCTTC	100
AACATAAAATATCGCACGCTTACTTATTTTCCGGCCCGCGCGGTACAGGA	
AAAACGAGCGCAGCGAAAATTTTCGCCAAGGCGGTCAACTGTGAACAGGC	200
GCCAGCGGCGGAGCCATGCAATGAGTGTCCAGCTTGCCTCGGCATTACGA	
ATGGAACGGTTCCCGATGTGCTGGAAATTGACGCTGCTTCCAACAACCGC	300
GTCGATGAAATTCTGTGATATCCGTGAGAAGGTGAAATTTGCGCCAACGTC	
GGCCCGCTACAAAGTGTATATCATCGACGAGGTGCATATGCTGTGCGATCG	400
GTGCGTTTAACGCGCTGTTGAAAACGTTGGAGGAGCCGCCGAAACACGTC	
ATTTTCATTTTGGCCACGACCGAGCCGCACAAAATTCCGGCGACGATCAT	500
TTCCCGCTGCCAACGGTTCGATTTTCGCCGCATCCCGCTTCAGGCGATCG	
TTTCACGGCTAAAGTACGTCGCAAGCGCCCAAGGTGTCGAGGCGTCAGAT	600
GAGGCATTGTCCGCCATCGCCCGTGCTGCAGACGGGGGGATGCGCGATGC	
GCTCAGCTTGCTTGATCAAGCCATTTTCGTTTCAGCGACGGGAAACTTCGGC	700
TCGACGACGTGCTGGCGATGACCGGGGCTGCATCATTTGCCGCCTTATCG	
AGCTTCATCGAAGCCATCCACCGCAAAGATACAGCGGCGGTTCTTCAGCA	800
CTTGGAACGATGATGGCGCAAGGGAAAGATCCGCATCGTTTGTTGAAG	
ACTTGATTTTGTACTATCGCGATTTATTGCTGTACAAAACCGCTCCCTAT	900
GTGGAGGGAGCGATTCAAATTGCTGTGCTTGACGAAGCGTTCACTTCACT	
GTCGGAAATGATTCCGGTTTCCAATTTATACGAGGCCATCGAGTTGCTGA	1000
ACAAAAGCCAGCAAGAGATGAAGTGGACAAACCACCCGCGCCTTCTGTTG	
GAAGTGGCGCTTGTGAAACTTTGCCATCCATCAGCCGCCGCCCGTCGCT	1100
GTCGGCTTCCGAGTTGGAACCGTTGATAAAGCGGATTGAAACGCTGGAGG	
CGGAATTGCGGCGCCTGAAGGAACAACCGCCTGCCCTCCGTCGACCGCC	1200
GCGCCGGTGAAAAAACTGTCCAAACCGATGAAAACGGGGGGATATAAAGC	
CCCGGTTGGCCGCATTTACGAGCTGTTGAAACAGGCGACGCATGAAGATT	1300
TAGCTTTGGTGAAAGGATGCTGGGCGGATGTGCTCGACACGTTGAAACGG	
CAGCATAAAGTGTGCGACGCTGCCTTGCTGCAAGAGAGCGAGCCGGTTGC	1400
AGCGAGCGCCTCAGCGTTTGTATTAAAATTCAAATACGAAATCCACTGCA	
AAATGGCGACCGATCCCACAAGTTCGGTCAAAGAAAACGTCGAAGCGATT	1500
TTGTTTGAGCTGACAAACCGCCGCTTTGAAATGGTAGCCATTCCGGAGGG	
AGAATGGGGGAAAAATAAGAGAAGAGTTCATCCGCAATAAGGACGCCATGG	1600
TGGAAAAAAGCGAAGAAGATCCGTTAATCGCCGAAGCGAAGCGGCTGTTT	
GGCGAAGAGCTGATCGAAATTAAAGAA	1677

FIG. 86

REPLACEMENT SHEET

80/83

VAYQALYRVFRPQRFADMVGQEHVTKTLQSALLQHKISHAYLFSGPRGTG	
KTSAAKIFAKAVNCEQAPAAEPCNECPACLGITNGTVPDVLEIDAASNNR	100
VDEIRDIREKVKFAPTSARYKVYIIDEVHMLSIGAFNALLKTLEPPKHV	
IFILATTEPHKIPATIIISRCQRFDFRRIPLQAIVSRLKYVASAQGVEASD	200
EALSAIARAADGGMRDALSLLDQAISFSDGKLRLDDVLAMTGAASFAALS	
SFIEAIHRKDTAAVLQHLETMMAQGKDPHRLVEDLILYYRDLLLYKTAPY	300
VEGAIQIAVVDEAFTSLSEMIPVSNLYEAEIELLNKSQQEMKWTNHPRLLL	
EVALVKLCHPSAAAPSLSASELEPLIKRIETLEAELRRLKEQPPAPPSTA	400
APVKKLSKPMKTGGYKAPVGRIYELLKQATHEDLALVKGCWADVLDTLKR	
QHKVSHAALLQESEPVAASASAFVLKFKYEIHCKMATDPTSSVKENVEAI	500
LFELTNRRFEMVAIPEGEWGKIREEFIRNKDAMVEKSEEDPLIAEAKRLF	
GEELIEIKE	559

FIG. 87

REPLACEMENT SHEET

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ATGGTGACAAAAGAGCAAAAAGAGCGGTTTCTCATCCTGCTTGAGCAGCT	
GAAGATGACGTCGGACGAATGGATGCCGCATTTTCGTGAGGCAGCCATTC	100
GCAAAGTCGTGATCGATAAAGAGGAGAAAAGCTGGCATTTTTATTTTCAG	
TTCGACAACGTGCTGCCGGTTCATGTATACAAAACGTTTGCCGATCGGCT	200
GCAGACGGCGTTCCGCCATATCGCCGCCGTCCGCCATACGATGGAGGTCG	
AAGCGCCGCGCGTAAC TGAGGCGGATGTG CAGGCGTATTGGCCGCTTTGC	300
CTTGCCGAGCTGCAAGAAGGCATGTGCGCCGCTTGTCGATTGGCTCAGCCG	
GCAGACGCCTGAGCTGAAAGGAAACAAGCTGCTTGTCGTTGCCCGCCATG	400
AAGCGGAAGCGCTGGCGATCAAACGGCGGTTCCGCCAAAAAATCGCTGAT	
GTGTACGCTTCGTTTGGGTTTCCCCCCTTCAGCTTGACGTCAGCGTCGA	500
GCCGTCCAAGCAAGAAATGGAACAGTTTTTTGGCGCAAAAACAGCAAGAGG	
ACGAAGAGCGAGCGCTTGCTGTACTGACCGATTTAGCGAGGGAAGAAGAA	600
AAGGCCGCGTCTGCGCCGCGTCCGGTCCGCTTGTCATCGGCTATCCGAT	
CCGCGACGAGGAGCCGGTGCGGCGGCTTGAAACGATCGTCGAAGAAGAGC	700
GGCGCGTCGTTGTGCAAGGCTATGTATTTGACGCCGAAGTGAGCGAATTA	
AAAAGCGGCCGCACGCTGTTGACCATGAAAATCACAGATTACACGAACTC	800
GATTTTAGTCAAAATGTTCTCGCGCGACAAAGAGGACGCCGAGCTTATGA	
GCGGCGTCAAAAAAGGCATGTGGGTGAAAGTGCGCGGCAGCGTGCAAAAC	900
GATACGTTTCGTCCGTGATTTGGTCATCATCGCCAACGATTTGAACGAAAT	
CGCCGCAAACGAACGGCAAGATACGGCGCCGGAAGGGGAAAAGAGGGTCG	1000
AGCTCCATTTGCATACCCCGATGAGCCAAATGGACGCGGTCACCTCGGTG	
ACAAAAC TCA TTGAGCAAGCGAAAAAATGGGGGCATCCGGCGATCGCCGT	1100
CACCGACCATGCCGTTGTTCAGTCGTTTCCGGAGGCCTACAGCGCGGCGA	
AAAAACACGGCATGAAGGTCATTTACGGCCTTGAGGCGAACATCGTCGAC	1200
GATGGCGTGCCGATCGCCTACAATGAGACGCACCGCCGTCTTTCGGAGGA	
AACGTACGTCGTCTTTGACGTCGAGACGACGGGCCTGTCGGCTGTGTACA	1300
ATACGATCATTGAGCTGGCGGCGGTGAAAGTGAAAGACGGCGAGATCATC	
GACCGATTCA TGTCGTTTGCCAACCCTGGACATCCGTTGTTCGGTGACAAC	1400
GATGGAGCTGACTGGGATCACCGATGAGATGGTGAAAGACGCCCCGAAGC	
CGGACGAGGTGCTAGCCCGTTTTTGTGACTGGGCCGGCGATGCGACGCTT	1500
GTTGCCCAACAACGCCAGCTTTGACATCGGTTTTTTTAAACGCGGGCCTCGC	
TCGCATGGGGCGCGGCAAAATCGCGAATCCAGTCATCGATACGCTCGAGC	1600
TGGCCCGTTTTTTTATACCCGGATTTGAAAAACCATCGGCTCAATACATTG	
TGCAAAAAATTTGACATTGAATTGACGCAGCATCACCGCGCCATCTACGA	1700
CGCGGAGGCGACCGGGCATTTGCTTATGCGGCTGTTGAAGGAAGCGGAAG	
AGCGCGGCATACTGTTTCATGACGAATTAAACAGCCGCACGCACAGCGAA	1800
GCGTCCTATCGGCTTGCGCGCCCGTTCATGTGACGCTGTTGGCGCAAAA	
CGAGACTGGATTGAAAAATTTGTTCAAGCTTGTGTCAATTGTTCGCACATTC	1900
AATATTTTTCACCGTGTGCCGCGCATCCCGCGCTCCGTGCTCGTCAAGCAC	
CGCGACGGCCTGCTTGTCGGCTCGGGCTGCGACAAAGGAGAGCTGTTTGA	2000
CAACTTGATCCAAAAGGCGCCGGAAGAAGTCGAAGACATCGCCCGTTTTT	
ACGATTTTCTTGAAGTGCATCCGCCGACGTGTACAAGCCGCTCATCGAG	2100
ATGGATTATGTGAAAGACGAAGAGATGATCAAAAACATCATCCGCAGCAT	
CGTCGCCCTTGGTGAGAAGCTTGACATCCCGGTTGTCGCCACTGGCAACG	2200

FIG. 88A

REPLACEMENT SHEET

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TCCATTACTTGAACCCAGAAGATAAAATTTACCGGAAAATCTTAATCCAT	2300
TCGCAAGGCGGGGCGAATCCGCTCAACCGCCATGAACTGCCGGATGTÀTA	2400
TTTCCGTACGACGAATGAAATGCTTGACTGCTTCTCGTTTTTAGGGCCGG	2500
AAAAAGCGAAGGAAATCGTCGTTGACAACACGCAAAAAATCGCTTCGTTA	2600
ATCGGCGATGTCAAGCCGATCAAAGATGAGCTGTATACGCCGCGCATTTGA	2700
AGGGGCGGACGAGGAAATCAGGGAAATGAGCTACCGGCGGGCGAAGGAAA	2800
TTTACGGCGACCCGTTGCCGAAACTTGTTGAAGAGCGGCTTGAGAAGGAG	2900
CTAAAAAGCATCATCGGCCATGGCTTTGCCGTCAATTTATTTGATCTCGCA	3000
CAAGCTTGTGAAAAAATCGCTCGATGACGGCTACCTTGTCGGGTTCGCGCG	3100
GATCGGTTCGGCTCGTCGTTTGTGCGGACGATGACGGAAATCACCGAGGTC	3200
AATCCGCTGCCGCCGCATTACGTTTGCCCGAACTGCAAGCATTCGGAGTT	3300
CTTTAACGACGGTTCAGTCGGCTCAGGGTTTGATTTGCCGGATAAAAACT	3400
GCCCGCGATGTGGGACGAAATACAAGAAAGACGGGCACGACATCCCGTTT	3500
GAGACGTTTCTCGGCTTTAAAGGCGACAAAGTGCCGGATATCGACTTGAA	3600
CTTTTCCGGCGAATACCAGCCGCGCGCCACAACCTATACGAAAGTGCTGT	3700
TTGGCGAAGACAACGTCTACCGCGCCGGGACGATTGGCACGGTCGCTGAC	3800
AAAACGGCGTACGGATTTGTCAAAGCGTATGCGAGCGACCATAACTTAGA	3900
GCTGCGCGGCGCGGAAATCGACGGCTCGCGGCTGGCTGCACCGGGGTGAA	4000
GCGGACGACCGGGCAGCATCCGGGCGGCATCATCGTCGTCCCGGATTATA	4100
TGGAATTTACGATTTTACGCCGATTCAATATCCGGCCGATGACACGTCC	4200
TCTGAATGGCGGACGACCCATTTTCGACTTCCATTCGATCCACGACAATTT	4300
GTTGAAGCTCGATATTCTCGGGCACGACGATCCGACGGTCATTCGCATGC	
TGCAAGATTTAAGCGGCATCGATCCGAAAACGATCCCGACCGACGACCCG	
GATGTGATGGGCATTTTCAGCAGCACCGAGCCGCTTGGCGTTACGCCGGA	
GCAAATCATGTGCAATGTTCGGCACGATCGGCATTCGGGAGTTTGGCACGC	
GCTTCGTTTCGGCAAATGTTGGAAGAGACAAGGCCAAAAACGTTTTCCGAA	
CTCGTGCAAATTTCCGGCTTGTGCGCACGGCACCGATGTGTGGCTCGGCAA	
CGCGCAAGAGCTCATTTCAAACGGCACGTGTACGTTATCGGAAGTCATCG	
GCTGCCGCGACGACATTATGGTCTATTTGATTTACCGCGGGCTCGAGCCG	
TCGCTCGCTTTTAAAATCATGGAATCCGTGCGCAAAGGAAAAGGCTTAAC	
GCCGGAGTTTGAAGCAGAAATGCGCAAACATGACGTGCCGGAGTGGTACA	
TCGATTCATGCAAAAAAATCAAGTACATGTTCCCGAAAGCGCACGCCGCC	
GCCTACGTGTTAATGGCGGTGCGCATCGCCTACTTTAAGGTGCACCATCC	
GCTTTTGTATTACGCGTCGTACTTTACGGTGCGGGCGGAGGACTTTGACC	
TTGACGCCATGATCAAAGGATCACCCGCCATTCGCAAGCGGATTGAGGAA	
ATCAACGCCAAAGGCATTCAGGCGACGGCGAAAGAAAAAAGCTTGCTCAC	
GGTTCTTGAGGTGGCCTTAGAGATGTGCGAGCGCGGCTTTTCCTTTAAAA	
ATATCGATTTGTACCGCTCGCAGGCGACGGAATTCGTTCATTGACGGCAAT	
TCTCTCATTCGCGCGTTCAACGCCATTCGCGGGCTTGGGACGAACGTGGC	
GCAGGCGATCGTGCAGCGCCCGCGAGGAAGGCGAGTTTTTGTGCAAGGAGG	
ATTTGCAACAGCGCGGCAAATTGTGCAAAACGCTGCTCGAGTATCTAGAA	
AGCCGCGGCTGCCTTGACTCGCTTCCAGACCATAACCAGCTGTCGCTGTT	
T	

FIG. 88B

REPLACEMENT SHEET

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MVTKEQKERFLILLEQLKMTSDEWMPHFREAAIRKVVIDKEEKSWHFYFQ	100
FDNVLPVHVYKTFADRLQTAFRHIAAVRHTMEVEAPRVTEADVQAYWPLC	
LAELQEGMSPLVDWLSRQTPELKGNKLLVVARHEAEALAIKRRFAKKIAD	200
VYASFGFPPLQLDVSVEPSKQEMEQLAQKQEQEDEERALAVLTDLAREEE	
KAASAPPSGPLVIGYPIDEEPVRRLETIVEEERRVVVQGYVFDAEVSEL	300
KSGRTLLTMKITDYTNSILVKMFSRDKEDAELMSGVKKGMWVKVRSVQN	
DTFVRDLVIIANDLNEIAANERQDTAPEGEKRVELHLHTPMSQMDAVTSV	400
TKLIEQAKKWGHPAIAVTDHAVVQSFPEAYSAAKKHGMKVIYGLEANIVD	
DGVPIAYNETHRRLSEETYVVFVETTGLSAVYNTIIELA AVKVKDGEII	500
DRFMSFANPGHPLSVTTMELTGITDEMVKDAPKPDEVLARFVDWAGDATL	
VAHNASFDIGFLNAGLARMGRGKIANPVIDTLELARFLYPDLKNHRLNTL	600
CKKFDIELTQHHRAIYDAEATGHLLMRLLEAEERGILFHDELNSRTHSE	
ASYRLARPFHVTLAQNETGLKNLFLKLVSLSHIQYFHRVPRI PRSVLVKH	700
RDGLLVGSGCDKGELFDNLIQKAPEEVEDIARFYDFLEVHPPDVYKPLIE	
MDYVKDEEMIKNIIRSIVALGEKLDIPVVATGNVHYLNPEDKIYRKILIH	800
SQGGANPLNRHEL PDVYFRTTNEMLDCFSFLGPEKAKEIVVDNTQKIASL	
IGDVKPIKDELYTPRIEGADEEIREMSYRRAKEIYGDPLPKLVEERLEKE	900
LKSIIGHGFAVIYLI SHKLVKKSLLDDGYLVGSRGSSVGFVATMTEITEV	
NPLPPHYVCPNCKHSEFFNDGSVGSFGLPDKNCPRCGTTYKKDGHDI PF	1000
ETFLGFGDKVDPDIDLNFSGEYQPRAHNYTKVLFGEDNVYRAGTIGTVAD	
KTAYGFVKAYASDHNLELRGAEIDLAAGCTGVKRTTGQHPGGIIVVPDYM	1100
EIYDFTPIQYPADDTSSSEWRTHFDFHSHIDNLLKLDILGHDDPTVIRML	
QDL SGIDPKTIPTDDPDVMGIFSSTEPLGVTPEQIMCNVGTIGIPEFGTR	1200
FVRQMLEETRPKTFSELVQISGLSHGTDVWLGN AQELIQNGTCTLSEVIG	
CRDDIMVYLIYRGLEPSLAFKIMESVRKGKGLTPEFEAEMRKHDVPEWYI	1300
DSCKKIKYMFPAHAAAYVLMAVRIAYFKVHHPLLYASYFTVRAEDFDL	
DAMIKGSPAIRKRIEEINAKGIQATAKEKSLLTVLEVALEM CERGFSFKN	1400
IDLYRSQATEFVIDGNSLIPPFNAIPGLGTNVAQAIVRAREEGEFLSKED	
LQQRGKLSKTLLEYLESRGCLDSL PDHNQLSLF	

FIG. 89